



# LAKELAND COMMUNITY COLLEGE LAKELAND TRANSFER CENTER

## LAKE COUNTY, OHIO

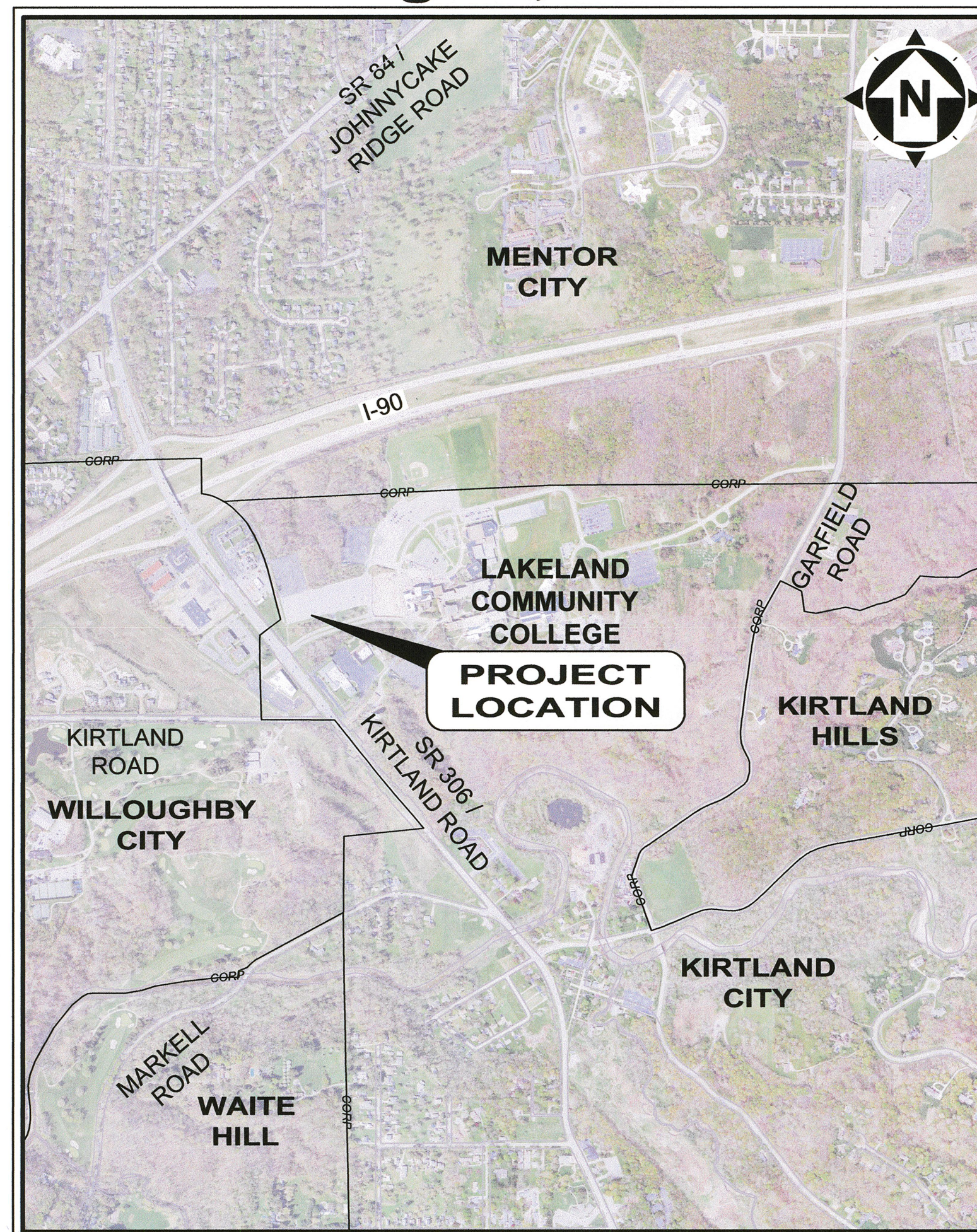
August, 2019

### LAKETRA BOARD OF TRUSTEES:

BRIAN J. FALKOWSKI ..... PRESIDENT  
 CHUCK ZIBBEL ..... VICE-PRESIDENT  
 DAVID ANDERSON  
 ALICE CABLE  
 DONNA P McNAMEE ..... OPERATIONS CHAIR  
 DENNIS MONTRELLA  
 DALE SCHIAVONI  
 LANE H. SHEETS

### LCC BOARD OF TRUSTEES:

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 RYAN K. CALLENDER, ESQ. .... VICE CHAIR  
 DAVID A. KALINA  
 DR. KATHLEEN T. MALEC  
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 KENNETH J. QUIGGLE  
 ROGER J. SUSTAR  
 MARK A. TYLER  
 BEVERLY A. VITAZ



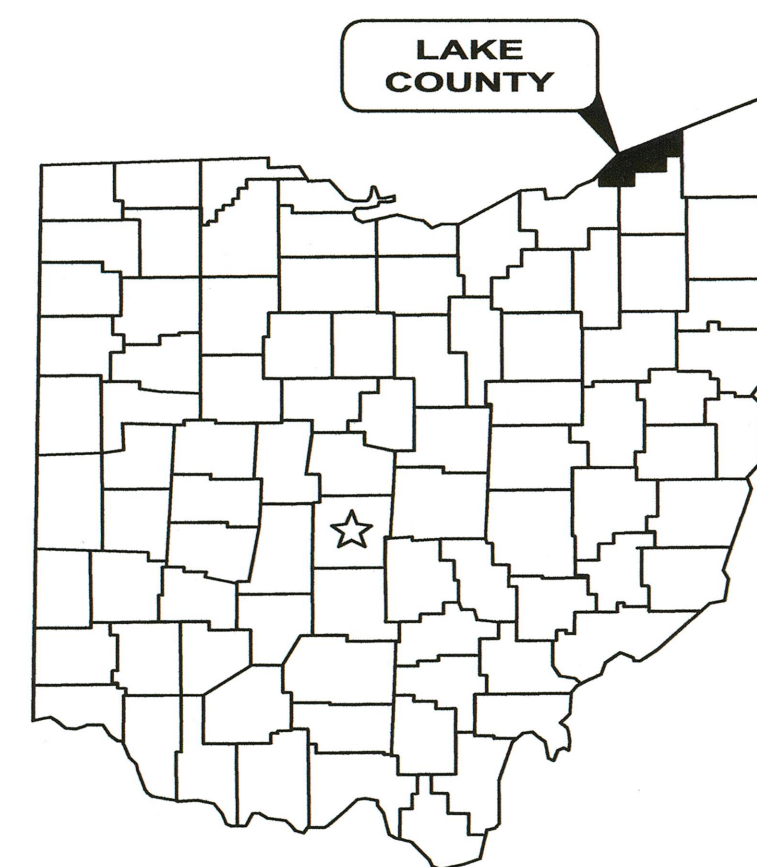
**LOCATION MAP**  
1" = 1,000'

### APPROVALS:

CITY ENGINEER - CITY OF WILLOUGHBY, OH  
(FOR SANITARY SEWER SYSTEM)

JIM SAYLES

15-80-19  
DATE



**UNDERGROUND UTILITIES**  
 CONTACT BOTH SERVICES  
 CALL TWO WORKING DAYS  
**BEFORE YOU DIG**

CALL  
 1-800-362-2764  
 (TOLL FREE)

OHIO UTILITIES PROTECTION SERVICE  
 NON-MEMBERS  
 MUST BE CALLED DIRECTLY

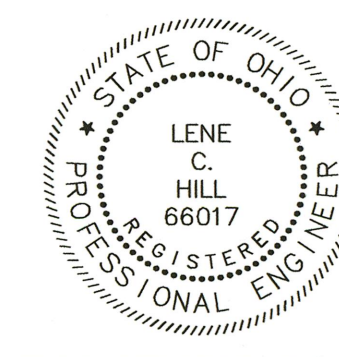
OIL & GAS PRODUCERS PROTECTIVE  
 SERVICE CALL: 1-800-925-0988

1. THE SURVEY SHOWN ON THESE PLANS WAS OBSERVED IN THE FIELD FOR CONSTRUCTION PURPOSES ONLY AND MAY NOT BE SUITABLE FOR PROPERTY LINE SURVEYS OR ANY OTHER PURPOSE.
2. UNDERGROUND BUILDING SERVICE UTILITY LINES ARE NOT SHOWN ON THE PLANS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING, MAINTAINING AND REPLACING AS NECESSARY TO ENSURE CONTINUAL SERVICE TO BUILDINGS.
3. THE CONTRACTOR IS RESPONSIBLE TO CALL OHIO UTILITIES PROTECTION SERVICE @ 1-800-362-2764, THREE WORKING DAYS PRIOR TO CONSTRUCTION.



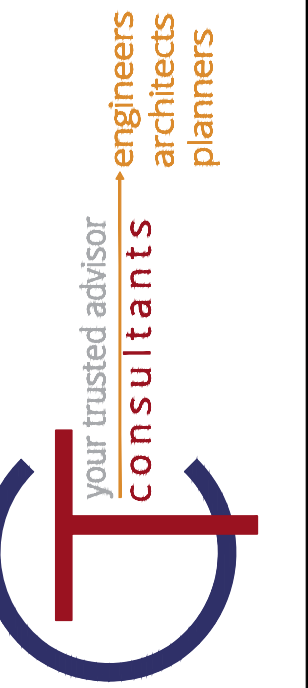
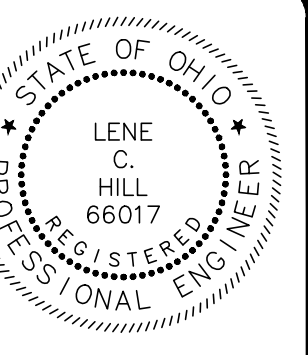
ENGINEER'S PROJECT No. 1805002

*Lene Hill*  
LENE C. HILL



P.E. No. 66017

8/2/19  
DATE



ISSUED FOR:	CD	NO	REVISION	DATE
ISSUE DATE:	8/5/2019			8/05/2019
SCALE:	AS SHOWN			
DESIGNED BY:	LCH / GMS			
DRAWN BY:	GMS			
CHECKED BY:	LCH			

**LAKELAND TRANSFER CENTER**  
**LAKELAND COMMUNITY COLLEGE**  
 7601 CLOCKTOWER DR., KIRTLAND, OH 44094

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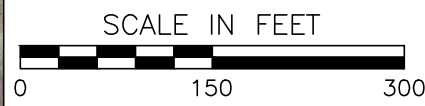
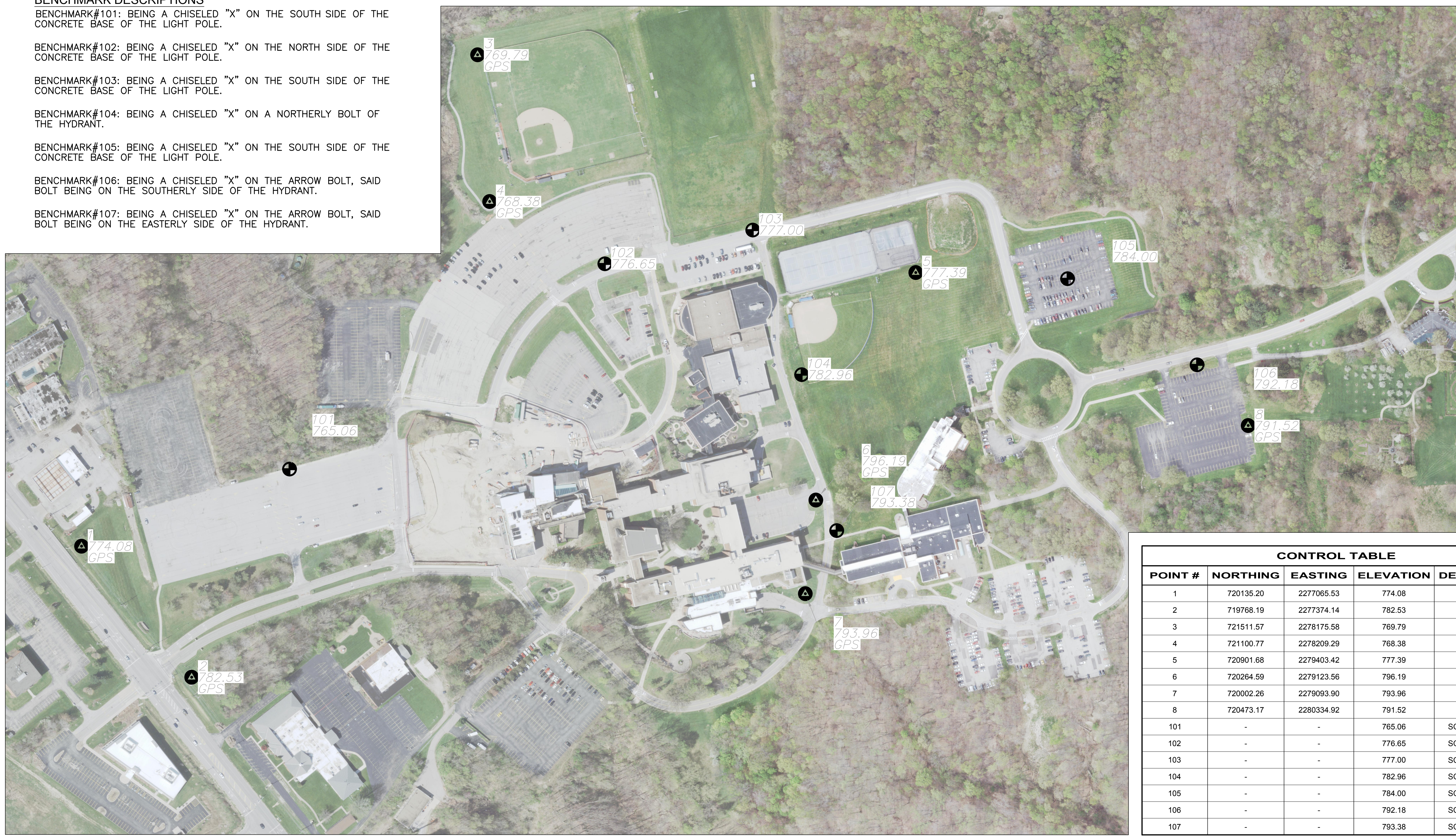
PROJECT NO.	
<b>18050002</b>	
DISCIPLINE	
<b>CIVIL</b>	
SHEET NAME	
<b>INDEX</b>	
SHEET	OF
<b>2</b>	<b>55</b>

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**CONTROL MAP**  
**LAKELAND COMMUNITY COLLEGE**  
 LAKE COUNTY, OHIO

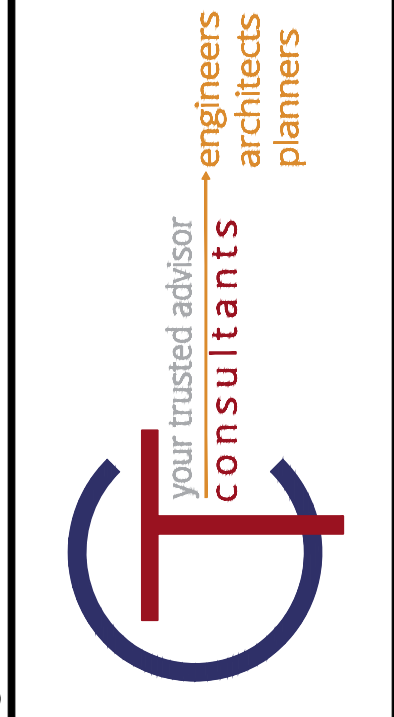
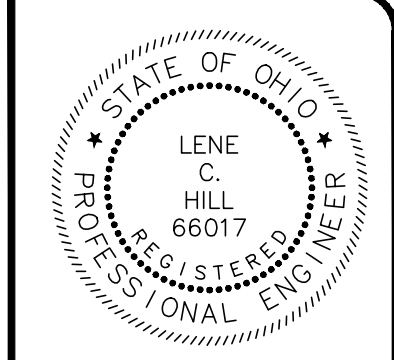
**BENCHMARK DESCRIPTIONS**

- BENCHMARK#101: BEING A CHISELED "X" ON THE SOUTH SIDE OF THE CONCRETE BASE OF THE LIGHT POLE.
- BENCHMARK#102: BEING A CHISELED "X" ON THE NORTH SIDE OF THE CONCRETE BASE OF THE LIGHT POLE.
- BENCHMARK#103: BEING A CHISELED "X" ON THE SOUTH SIDE OF THE CONCRETE BASE OF THE LIGHT POLE.
- BENCHMARK#104: BEING A CHISELED "X" ON A NORTHERLY BOLT OF THE HYDRANT.
- BENCHMARK#105: BEING A CHISELED "X" ON THE SOUTH SIDE OF THE CONCRETE BASE OF THE LIGHT POLE.
- BENCHMARK#106: BEING A CHISELED "X" ON THE ARROW BOLT, SAID BOLT BEING ON THE SOUTHERLY SIDE OF THE HYDRANT.
- BENCHMARK#107: BEING A CHISELED "X" ON THE ARROW BOLT, SAID BOLT BEING ON THE EASTERLY SIDE OF THE HYDRANT.



CONTROL TABLE				
POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
1	720135.20	2277065.53	774.08	SCGPS
2	719768.19	2277374.14	782.53	SCGPS
3	721511.57	2278175.58	769.79	SCGPS
4	721100.77	2278209.29	768.38	SCGPS
5	720901.68	2279403.42	777.39	SCGPS
6	720264.59	2279123.56	796.19	SCGPS
7	720002.26	2279093.90	793.96	SCGPS
8	720473.17	2280334.92	791.52	SCGPS
101	-	-	765.06	SCBMS CHISELED
102	-	-	776.65	SCBMS CHISELED
103	-	-	777.00	SCBMS CHISELED
104	-	-	782.96	SCBMS CHISELED
105	-	-	784.00	SCBMS CHISELED
106	-	-	792.18	SCBMS CHISELED
107	-	-	793.38	SCBMS CHISELED

**NOTES:**  
 1) HORIZONTAL DATUM IS NAD83 (2011 ADJ.), VERTICAL DATUM NAVD83 (GEOID 12B)  
 2) ALL COORDINATE VALUES ARE GRID VALUES  
 3) COMBINED SCALE FACTOR IS 0.99989181/1.00010820  
 4) ALL CONTROL POINTS ARE 2 INCH ALUMINUM CAPS INSCRIBED WITH "CT REFERENCE"



ISSUED FOR:	CD	NO	REVISION	DATE
ISSUE DATE: 08/01/18	08/01/18			
SCALE: 1"=150'	1"=150'			
DESIGNED BY: JWC	JWC			
DRAWN BY: JWC	JWC			
CHECKED BY: TMM	TMM			

**LAKELAND TRANSFER CENTER**  
**LAKELAND COMMUNITY COLLEGE**  
 7601 CLOCKTOWER DR., KIRTLAND, OH 44094

**SURVEY CONTROL**

PROJECT NO.	18050002
DISCIPLINE	CIVIL
SHEET NAME	CONTROL
SHEET	3
OF	55

**MAINTENANCE OF TRAFFIC NOTES**

**ITEM 614 - MAINTAINING TRAFFIC**

ALL TRAFFIC CONTROL SHALL BE IN ACCORDANCE WITH LATEST EDITION OF THE "OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS", HERINAFTER REFERRED TO AS THE MANUAL, AND SHALL BE FURNISHED, ERECTED, MAINTAINED, RELOCATED AND REMOVED BY THE CONTRACTOR.

THE CONTRACTOR SHALL FURNISH AND MAINTAIN ALL NECESSARY SAFEGUARDS, SUCH AS BARRICADES, LIGHTING, FLAGGERS, PLASTIC DRUMS, FLASHING ARROW PANELS AND SUCH OTHER TRAFFIC CONTROL DEVICES AS PROVIDED IN ITEM 614, MAINTAINING TRAFFIC, SO AS TO AVOID DAMAGE AND/OR INJURY TO VEHICLES AND PERSONS USING THE ROADWAYS AND PARKING LOTS DURING CONSTRUCTION. WHENEVER LAKELAND COMMUNITY COLLEGE DEEMS IT NECESSARY, THEY MAY DIRECT THAT ADDITIONAL OR ALTERNATIVE DEVICES BE USED. ALSO, THE CONTRACTOR SHALL PROVIDE SUFFICIENT ADDITIONAL BARRICADES, ETC. TO PROTECT THE FRESH PAVEMENT DURING THE CURING PERIOD FROM VEHICLES WHICH MAY DRIVE AROUND OR THROUGH THE TRAFFIC CONTROL.

TRAFFIC CONTROL DEVICES SHALL BE SET UP PRIOR TO THE START OF CONSTRUCTION AND SHALL BE PROPERLY MAINTAINED DURING THE TIME SUCH SPECIAL CONDITIONS EXIST. THEY SHALL REMAIN IN PLACE ONLY AS LONG AS THEY ARE NEEDED AND SHALL BE IMMEDIATELY REMOVED THEREAFTER. WHERE OPERATIONS ARE PERFORMED IN PHASES, THERE SHALL BE IN PLACE ONLY THOSE DEVICES THAT APPLY TO THE CONDITION PRESENT DURING THE PHASE IN PROGRESS. ALL SIGNS WITH MESSAGES WHICH DO NOT APPLY DURING A CERTAIN PERIOD SHALL BE COVERED OR SET ASIDE OUT OF THE VIEW OF TRAFFIC. CONFLICTING PAVEMENT MARKINGS SHALL BE CORRECTED WITHIN EIGHT HOURS AFTER THE CONTRACTOR'S NOTIFICATION OF THE PROBLEM. IF WEATHER IS NOT CONDUCIVE TO PAVEMENT MARKING INSTALLATION THEN REPAIRS SHALL BE MADE ON THE FIRST WEATHER PERMISSIVE DAY AFTER NOTIFICATION.

**WORK HOURS**

NO WORK BETWEEN THE HOURS OF 9:00 PM TO 7:00 AM SHALL BE PERMITTED UNLESS OTHERWISE SPECIFICALLY APPROVED BY LAKELAND COMMUNITY COLLEGE.

**FAILURE TO COMPLY**

FOR ANY FAILURE TO COMPLY WITH PROVISIONS FOR TRAFFIC CONTROL SET OUT IN THESE PLANS AND NOTES OR WITH THE PROVISIONS OF THE MANUAL, THE ROADWAYS AND PARKING LOTS IN THE VICINITY OF THE WORK AREA SHALL BE CONSIDERED IN A CONDITION UNACCEPTABLE FOR THE SAFETY AND CONVENIENT USE BY THE TRAVELING PUBLIC. ANY FAILURE TO KEEP THE ROADWAYS AND PARKING LOTS IN THE VICINITY OF THE WORKING AREA IN A CONDITION ACCEPTABLE FOR THE SAFE AND CONVENIENT USE BY THE TRAVELING PUBLIC SHALL BE CONSIDERED A BREACH OF THIS CONTRACT. WORK SHALL BE SUSPENDED UNTIL THE CONTRACTOR COMPLIES WITH THE PROVISIONS OF THE AFOREMENTIONED ITEMS.

**NOTIFICATION**

THE LAKELAND COMMUNITY COLLEGE POLICE DEPARTMENT AND THE CITY OF KIRTLAND POLICE AND FIRE DEPARTMENTS SHALL BE NOTIFIED AT LEAST ONE (1) WEEK PRIOR TO THE ACTUAL START OF CONSTRUCTION.

LAKELAND COMMUNITY COLLEGE POLICE DEPARTMENT  
RON MORENZ, CHIEF 440-525-7241

CITY OF KIRTLAND POLICE DEPARTMENT:  
LANCE R. NOSSE, CHIEF 440-256-3333

CITY OF KIRTLAND FIRE DEPARTMENT  
ANTHONY P. HUTTON, CHIEF 440-256-4706

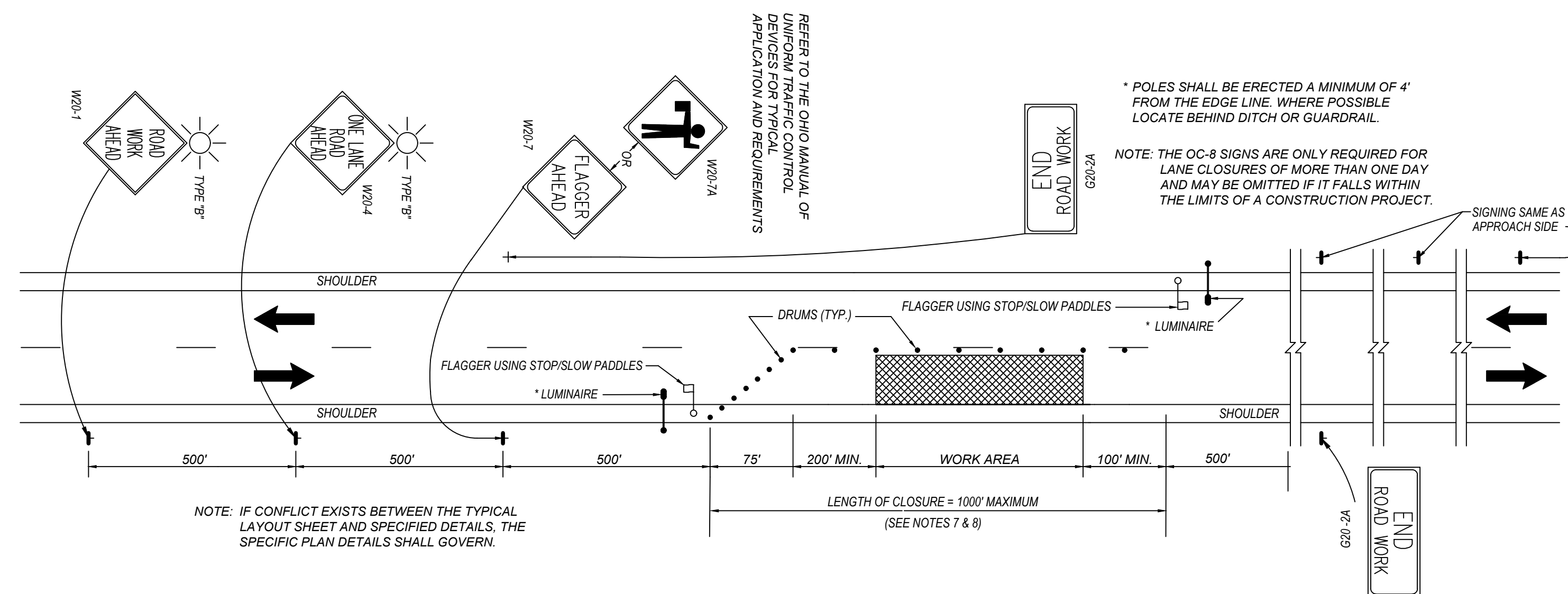
**MATERIALS FOR MAINTAINING TRAFFIC**

**SIGNS**

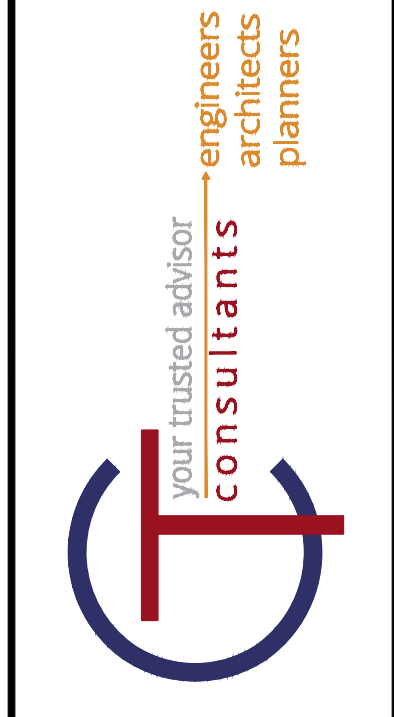
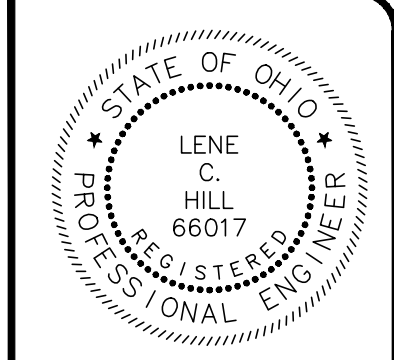
SIGN DIMENSION AND SPECIFICATIONS, INCLUDING LETTER SIZES, SHALL BE AS PROVIDED IN THE MANUAL OR SIGN DESIGN DRAWINGS PROVIDED IN THESE PLANS. THE SIGNS SHALL BE SUBJECT TO APPROVAL BY LAKELAND COMMUNITY COLLEGE PRIOR TO THE START OF THE PROJECT. ALL COST FOR INSTALLING, MAINTAINING AND SUBSEQUENT REMOVAL OF SAID SIGNS SHALL BE INCLUDED IN THE LUMP SUM BID PRICE.

**SIGN SUPPORTS**

SIGN SUPPORTS SHALL BE OF SUFFICIENT SIZES AND HEIGHT TO SUPPORT THE SIGNS AT THE HEIGHT INDICATED IN THE MANUAL. SUPPORTS SHALL ALSO BE ADEQUATE IN MASS AND STABILITY TO PREVENT SIGNS FROM BEING BLOWN OVER BY WIND OR VEHICULAR-GENERATED AIR TURBULENCE. ALL COSTS FOR INSTALLING, MAINTAINING AND SUBSEQUENT REMOVAL OF SAID SIGNS SHALL BE INCLUDED IN THE LUMP SUM BID PRICE.



1. FLAGGERS, ONE FOR EACH DIRECTION, SHALL BE USED TO CONTROL TRAFFIC CONTINUOUSLY FOR AS LONG AS A ONE-LANE OPERATION IS IN EFFECT. THE FLAGGERS SHALL BE ABLE TO COMMUNICATE WITH EACH OTHER AT ALL TIMES AND CONFORM TO OTHER REQUIREMENTS AS DESCRIBED IN THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (OMUTCD) IN SECTION 7H: CONTROL OF TRAFFIC THROUGH WORK AREAS.
2. DRUMS SHALL BE SPACED AT 50' CENTER TO CENTER ALONG THE CLOSURE. DRUMS ON THE ADVANCE TAPER SHALL BE SPACED AT 10' CENTER TO CENTER. CONES HAVING A MINIMUM HEIGHT OF 28" MAY BE SUBSTITUTED FOR DRUMS FOR DAYTIME LANE CLOSURES. PROVISIONS SHALL BE MADE TO STABILIZE THE CONES TO PREVENT THEM FROM BLOWING OVER.
3. ADEQUATE AREA ILLUMINATION TO CLEARLY IDENTIFY THE FLAGGER STATION AT NIGHT SHALL BE PROVIDED BY USING 150 WATT MINIMUM HIGH PRESSURE SODIUM LUMINAIRES OR 250 WATT MINIMUM MERCURY VAPOR LUMINAIRES. THE LUMINAIRES SHALL BE LOCATED ADJACENT TO THE FLAGGER STATION FOR EACH DIRECTION OF TRAFFIC AS SHOWN ABOVE. THE MOUNTING HEIGHT FOR THE LUMINAIRES SHALL BE A MINIMUM OF 27 FEET ABOVE THE PAVEMENT AND MOUNTED ON A SUPPORT OF A MINIMUM OF 27 FEET ABOVE THE PAVEMENT AND MOUNTED ON A SUPPORT OF ADEQUATE STRENGTH TO PROVIDE A SATISFACTORY INSTALLATION. THE OVERHEAD CONDUCTOR CLEARANCE SHALL BE A MINIMUM OF 15 FEET ABOVE THE PAVEMENT.  
  
THE LUMINAIRE ARMS SHALL BE OF SUFFICIENT LENGTH TO EXTEND TO THE EDGE OF THE PAVEMENT.
4. THE LOCATION OF THE ADVANCE WARNING SIGNS SHOULD BE ADJUSTED TO PROVIDE FOR ADEQUATE SIGHT DISTANCE FOR THE EXISTING VERTICAL AND HORIZONTAL ROADWAY ALIGNMENT. THE DISTANCES SHOWN ARE MINIMUMS.
5. THE TYPE "B" FLASHING BARRICADE WARNING LIGHTS SHOWN ON THE "ROAD CONSTRUCTION AHEAD" AND THE "ONE LANE ROAD AHEAD" SIGNS ARE REQUIRED WHENEVER A NIGHT LANE CLOSURE IS NECESSARY.
6. TYPE "C" STEADY BURNING BARRICADE WARNING LIGHTS SHALL BE ERECTED ON DRUMS FOR NIGHT LANE CLOSURES. THE MAXIMUM SPACING SHALL BE IDENTICAL TO THE CHANNELIZING DEVICE SPACING REQUIREMENTS DESCRIBED IN NOTE 2.
7. WITHIN THE LENGTH OF CLOSURE, PROVISIONS SHALL BE MADE TO CONTROL TRAFFIC ENTERING FROM INTERSECTING STREETS AND DRIVES AS NECESSARY TO PREVENT WRONG WAY MOVEMENTS.
8. THE ENGINEER MAY SHORTEN THE MAXIMUM ALLOWABLE LENGTH OF CLOSURE TO RELIEVE EXCESSIVE TRAFFIC BACKUPS. ALL TRAFFIC CONTROL SIGNS, CHANNELIZING DEVICES AND THE FLAGGER SHALL BE MOVED FORWARD BEFORE THE CLOSURE REACHES THE MAXIMUM ALLOWABLE LENGTH. ONLY ONE SIDE OF THE ROAD SHALL BE CLOSED AT ANY ONE TIME.
9. PAYMENT FOR ALL OF THE ABOVE, UNLESS ITEMIZED SEPARATELY, SHALL BE INCLUDED IN "ITEM 614 - MAINTAINING TRAFFIC".



ISSUED FOR:	CD	NO	REVISION	DATE
ISSUE DATE:	8/5/2019			
SCALE:	AS SHOWN			
DESIGNED BY:	LCH / GMS			
DRAWN BY:	GMS			
CHECKED BY:	LCH			

**LAKELAND TRANSFER CENTER**  
**LAKELAND COMMUNITY COLLEGE**  
 7601 CLOCKTOWER DR., KIRTLAND, OH 44094

**MAINTENANCE OF TRAFFIC**

PROJECT NO.	<b>18050002</b>
DISCIPLINE	<b>CIVIL</b>
SHEET NAME	<b>MOT</b>
SHEET	OF
<b>4</b>	<b>55</b>

**GENERAL NOTES**

- 1) WHEN SPECIFIED ON THE PLANS OR IN THE SPECIFICATIONS, CONTINGENCY QUANTITIES SHALL BE PERFORMED ONLY UNDER WRITTEN DIRECTION OF THE OWNER. THE CONTRACTOR SHALL NOT ORDER ANY CONTINGENCY MATERIAL OR PERFORM ANY CONTINGENCY WORK UNTIL DIRECTED. THE ACTUAL WORK LOCATION AND QUANTITIES FOR SUCH ITEMS SHALL BE DOCUMENTED BY THE CONTRACTOR.
- 2) THE CONTRACTOR SHALL REVIEW THE GEOTECHNICAL ENGINEERING REPORT PREPARED BY SME, INC. DATED DECEMBER 9, 2016, AND ANY SUBSEQUENT REVISIONS. A COPY OF THIS REPORT WILL BE MADE AVAILABLE TO THE CONTRACTOR THROUGH THE OWNER OR DESIGN ENGINEER. THE CONTRACTOR SHALL ADHERE TO ALL ASPECTS AND RECOMMENDATIONS OF THE REPORT.
- 3) THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONSTRUCTION LAYOUT STAKING INCLUDING HORIZONTAL AND VERTICAL CONTROL. THESE PLANS HAVE BEEN DEVELOPED FOR ELECTRONIC LAYOUT STAKING. ANY DISCREPANCIES DISCOVERED IN THE PLAN INFORMATION, OR BETWEEN THE PLAN AND ELECTRONIC DATA, SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE DESIGN ENGINEER SO THE APPROPRIATE ADJUSTMENTS MAY BE MADE PRIOR TO THE START OF CONSTRUCTION OR THE CONTINUATION OF THE SAME. THE DESIGN ENGINEER MAKES NO REPRESENTATION REGARDING FITNESS FOR ANY PARTICULAR PURPOSE, OR SUITABILITY FOR USE WITH ANY SOFTWARE OR HARDWARE. DUE TO THE EASILY ALTERABLE NATURE OF ELECTRONIC DOCUMENTS, THROUGH EITHER UNINTENTIONAL OR INTENTIONAL MEANS, THE DESIGN ENGINEER DOES NOT MAKE ANY EXPRESS OR IMPLIED WARRANTY FOR THE ACCURACY OR COMPLETENESS OF THIS INFORMATION AND THEREFORE, ACCEPTS NO LIABILITY FOR THE COMPLETENESS, CORRECTNESS OR READABILITY OF THE ELECTRONIC DATA. HARD COPIES (I.E., PRINTS, PAPER COPIES, ETC.) SHALL PREVAIL IN ANY DISPUTE OVER ACCURACY OR SUFFICIENCY OF ELECTRONIC DOCUMENTS.
- 4) THE CONTRACTOR SHALL MAINTAIN A CURRENT SET OF CONSTRUCTION DRAWINGS ON SITE AT ALL TIMES.
- 5) THE CONTRACTOR SHALL SUBMIT A PLAN OF OPERATIONS FOR REVIEW AND APPROVAL BY THE OWNER THAT WILL INDICATE EQUIPMENT STAGING AREAS, STOCKPILE LOCATIONS, CONSTRUCTION TRAILERS AND SANITATION FACILITIES.
- 6) THE CONTRACTOR SHALL MAINTAIN A SAFE WORKING ENVIRONMENT AT THE PROJECT SITE AT ALL TIMES. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR DESIGNING AND CONSTRUCTING STABLE, TEMPORARY EXCAVATIONS PER APPLICABLE LOCAL, STATE AND FEDERAL SAFETY REGULATIONS INCLUDING OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) REGULATIONS. NEITHER THE OWNER NOR THE DESIGN ENGINEER ASSUMES RESPONSIBILITY FOR CONSTRUCTION SAFETY OR THE CONTRACTOR'S OR OTHER PARTIES' COMPLIANCE WITH SAFETY REGULATIONS, SUCH RESPONSIBILITY IS NOT BEING IMPLIED AND SHOULD NOT BE INFERRED.
- 7) APPROPRIATE BARRICADES, WARNING LIGHTS, SIGNS, FENCING, ETC. SHALL BE ERRECTED AROUND THE CONSTRUCTION AREA DURING ALL NON-WORKING HOURS TO ALERT PERSONS OF THE POTENTIAL DANGER ASSOCIATED WITH THE AREA UNDER CONSTRUCTION AS WELL AS TO PREVENT ACCESS BY UNAUTHORIZED PERSONNEL TO THE CONSTRUCTION SITE. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THE SAFETY OF THE GENERAL PUBLIC AS WELL AS ALL CONSTRUCTION PERSONNEL. THE CONTRACTOR SHALL ALERT ALL LOCAL EMERGENCY AGENCIES (FIRE, POLICE, AMBULANCE, ETC.) OF THE NATURE OF THE PROPOSED PROJECT PRIOR TO BEGINNING ANY CONSTRUCTION ACTIVITY.
- 8) THE FOLLOWING PRACTICES ARE PROHIBITED WITHIN PROTECTION ZONES:
  - a) STORAGE OF CONSTRUCTION MATERIALS, DEBRIS OR EXCAVATED MATERIAL
  - b) PARKING VEHICLES OR EQUIPMENT
  - c) FOOT TRAFFIC
  - d) ERECTION OF SHEDS OR STRUCTURES
  - e) IMPOUNDMENT OF WATER
  - f) EXCAVATION OR OTHER DIGGING
  - g) ATTACHMENT OF SIGNS TO OR WRAPPING MATERIALS AROUND TREES OR PLANTS
- 15) ANY EXISTING ROADWAY, DRIVEWAY, DRIVE CULVERT, LAWN, CURB, SIDEWALK, SIGN, MAILBOX, FENCE, RETAINING WALL, GUARDRAIL, LAWN IRRIGATION SYSTEM COMPONENT, LANDSCAPING ITEM, OR OTHER APPURTENANCE DISTURBED DURING CONSTRUCTION BUT NOT DESIGNATED FOR REMOVAL/REPLACEMENT SHALL BE RESTORED BY THE CONTRACTOR WITHOUT ADDITIONAL COMPENSATION TO A CONDITION EQUAL TO OR BETTER THAN THAT WHICH EXISTED PRIOR TO DISTURBANCE AND TO THE SATISFACTION OF THE OWNER.
- 16) THE CONTRACTOR SHALL CAREFULLY PRESERVE ALL BENCHMARKS, PROPERTY LINE REFERENCES (E.G., PINS, PIPES, MONUMENTS), AND ANY OTHER SURVEY REFERENCE. IN CASE OF DISTURBANCE, THE CONTRACTOR SHALL ENGAGE A REGISTERED SURVEYOR TO REPLACE THEM AT THE CONTRACTOR'S EXPENSE AND SHALL BE RESPONSIBLE FOR ANY ERRORS THAT MAY BE CAUSED BY THEIR LOSS OR DISTURBANCE. ALL NOTES AND CALCULATIONS USED IN RESETTING OF PROPERTY PINS, MONUMENTS, REFERENCE POINTS, OR ANY OTHER SURVEY REFERENCE SHALL BE STAMPED, SIGNED AND DATED BY THE REGISTERED SURVEYOR AND COPIES PROVIDED TO THE OWNER.
- 17) THE CONTRACTOR SHALL DESIGNATE AND MAINTAIN A PERSON IN RESPONSIBLE CHARGE (SUPERVISOR) WITH A WORKING CELL PHONE AT THE CONSTRUCTION SITE DURING ALL CONSTRUCTION ACTIVITIES.

**MAINTENANCE OF TRAFFIC NOTES:**

- 1) THE CONTRACTOR SHALL MAINTAIN TRAFFIC ADJACENT TO THE PROJECT. THE CONTRACTOR SHALL FURNISH AND MAINTAIN ALL SIGNS, FLAGS, FLAG PERSONS, BARRICADES, SIGN SUPPORTS, CONES, BARRELS AND INCIDENTALS IN CONFORMANCE WITH THE MOST RECENT REVISED EDITION OF THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS. INTERFERENCE WITH TRAFFIC SHALL BE KEPT MINIMAL AT ALL TIMES. ALL OPEN TRENCHES AND EXCAVATIONS SHALL BE PROTECTED WITH DRUMS, BARRICADES, OR BARRIERS AT ALL TIMES.

**EXISTING CONDITION AND DEMOLITION NOTES:**

- 1) THE CONTRACTOR MUST CONTACT THE OHIO UTILITIES PROTECTION SERVICE (OUPS) AT 1-800-362-2764 AND THE OHIO OIL AND GAS ASSOCIATION (OGPUPS) AT 1-800-925-0988 AT LEAST 48 HOURS, BUT NO MORE THAN 10 WORKING DAYS, BEFORE BEGINNING ANY DIGGING, EXCLUDING SATURDAYS, SUNDAYS AND OTHER LEGAL HOLIDAYS. NON-MEMBER UTILITIES MUST BE CONTACTED DIRECTLY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO BE FAMILIAR WITH THE WRITTEN REQUIREMENTS OF OUPS AND OGPUPS. THE CONTRACTOR SHALL COORDINATE THE MARKING AND/OR LOCATING TO STAY A MINIMUM OF TWO WORKING DAYS AHEAD OF PLANNED CONSTRUCTION ACTIVITIES.
- 2) THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES SHOWN ON THE CONSTRUCTION PLANS WERE OBTAINED BY FIELD OBSERVATIONS, FROM EXISTING RECORDS, AND/OR FROM THE OWNERS OF THE RESPECTIVE UTILITIES. THE INFORMATION AS SHOWN IS BELIEVED TO BE CORRECT; HOWEVER, THE COMPLETENESS AND ACCURACY OF THIS INFORMATION CANNOT BE GUARANTEED. THE CONTRACTOR SHALL BE RESPONSIBLE TO CONTACT ALL THE VARIOUS UTILITY COMPANIES (PUBLIC AND PRIVATE) TO VERIFY THE EXISTENCE, LIMITS AND/OR LOCATION OF ANY UTILITIES WHICH MAY BE ALONG THE ROUTE OR WITHIN THE VICINITY OF THIS IMPROVEMENT.
- 3) THE CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY THE EXISTENCE AS WELL AS THE ACTUAL LOCATION, ALIGNMENT, AND ELEVATIONS OF ALL EXISTING UTILITIES/FACILITIES WITHIN AND/OR ADJACENT TO THE GENERAL LIMITS OF THESE IMPROVEMENTS INCLUDING WATERLINES, SANITARY AND STORM SEWERS, GAS LINES, COMMUNICATION LINES/BANKS, ELECTRIC LINES, ETC. THIS MAY REQUIRE EXPLORATORY EXCAVATIONS TO BE PERFORMED BY THE CONTRACTOR FOR WHICH HE WILL NOT BE REIMBURSED. THE CONTRACTOR SHALL NOT ASSUME THAT EXISTING UTILITIES/CONDUITS WERE INSTALLED AT TYPICAL/STANDARD DEPTHS OR AT UNIFORM SLOPES/GRADES/DEPTHS BETWEEN ACCESS POINTS (CATCH BASINS, MANHOLES, JUNCTION CHAMBERS, ETC.)
- 4) CLEARING AND GRUBBING SHALL BE PERFORMED WHERE EARTHWORK IS REQUIRED. THIS WORK SHALL INCLUDE CLEARING, GRUBBING, SCALPING, TREE AND STUMP REMOVAL, AND THE REMOVAL AND DISPOSAL OF ALL VEGETATION AND DEBRIS WITHIN THE LIMITS OF WORK.
- 5) THE CONTRACTOR SHALL REMOVE ALL SURPLUS MATERIAL, DEMOLISHED MATERIALS AND WASTE MATERIALS INCLUDING TREES, STUMPS, BRUSH, TRASH AND DEBRIS, FROM THE PROJECT LIMITS AND LEGALLY DISPOSE OF OFF-SITE.
- 6) PAVEMENT TO BE REMOVED SHALL BE SAWCUT AND REMOVED FULL DEPTH AT LIMITS OR EXISTING JOINTS AS SHOWN IN THE PLANS. ADDITIONAL SAWCUTS MAY BE DESIRED TO FACILITATE THE REMOVAL OF THE EXISTING PAVEMENT, BUT THERE WILL BE NO EXTRA PAYMENT. PAVEMENT SHALL BE REMOVED WITHOUT DAMAGING OR UNDERMINING THE PAVEMENT TO REMAIN. IF ADJACENT PAVEMENT IS DAMAGED, THE CONTRACTOR SHALL MAKE ADDITIONAL SAWCUTS, REMOVE THE DAMAGED AREAS AND REPAIR AS NECESSARY WITH NO ADDITIONAL COMPENSATION.

**UTILITIES CONTACTS:**

THE ILLUMINATING COMPANY  
JOHN ZASSICK  
PUBLIC WORKS COORDINATOR  
6896 MILLER RD.  
BRECKSVILLE, OH 44141  
440-546-8706  
JMZASSICK@FIRSTENERGYCORP.COM

ORWELL NATURAL GAS  
TIM REILLY  
8470 STATION STREET  
MENTOR, OH 44060  
440-701-5100  
TREILLY@EGAS.NET

AQUA AMERICA, INC.  
MR. JAMES WATSON  
8644 STATION ST.  
MENTOR, OH 44060  
440-255-3984 EXT. 50614  
JAWATSON@AQUAAMERICA.COM

CITY OF WILLOUGHBY - SANITARY SEWER  
LEE BOCK  
DIRECTOR OF PUBLIC SERVICE  
ONE PUBLIC SQUARE  
WILLOUGHBY, OH 44094  
440-953-4111

**GRADING NOTES:**

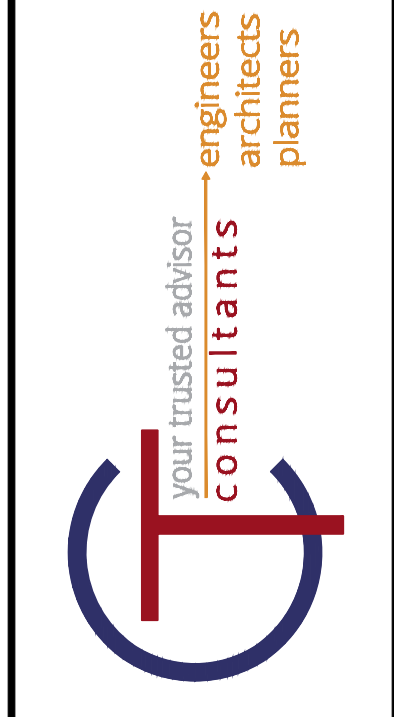
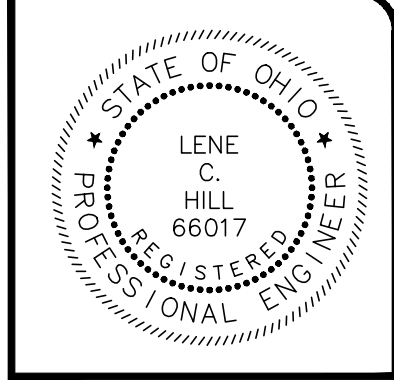
- 1) THE CONTRACTOR SHALL REVIEW THE GEOTECHNICAL ENGINEERING REPORT PREPARED BY SME, INC. DATED NOVEMBER 6, 2018. THE CONTRACTOR SHALL ADHERE TO ALL ASPECTS AND RECOMMENDATIONS OF THE REPORT.
- 2) ALL EXCAVATION IS CONSIDERED UNCLASSIFIED AND THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL MEANS, METHODS AND MATERIALS OF CONSTRUCTION TO COMPLETE CONSTRUCTION AS DESIGNED. THE OWNER NOR THE DESIGN ENGINEER SHALL BE RESPONSIBLE FOR THE TYPE AND/OR SUITABILITY OF THE MATERIAL UNDERLYING THE PROJECT SITE. THE BIDDER SHALL PERFORM ANY INVESTIGATIONS AND/OR TESTING NECESSARY TO ADEQUATELY DETERMINE OR ESTIMATE TO THEIR SATISFACTION ANY EXISTING SITE CONDITION WHICH COULD AFFECT HIS BID OR THE PERFORMANCE OF THE PROPOSED IMPROVEMENTS. THIS COULD INCLUDE, BUT NOT BE LIMITED TO, UNSUITABLE AND/OR UNSTABLE SOIL/SUBSURFACE CONDITIONS, ROCK, WATER (PERCHED OR FREE), SPRINGS, OBSTRUCTIONS, ETC.
- 3) THE CONTRACTOR SHALL PROTECT STRUCTURES, UTILITIES, SIDEWALKS, PAVEMENTS AND OTHER FACILITIES TO REMAIN FROM DAMAGE CAUSED BY SETTLEMENT, LATERAL MOVEMENT, UNDERMINING, WASHOUT, AND OTHER HAZARDS CREATED BY EARTH MOVING OPERATIONS.
- 4) THE INTENT OF THIS PROJECT IS TO UTILIZE ALL USEABLE MATERIALS EFFICIENTLY. ACTUAL FIELD CONDITIONS MAY REQUIRE DECISIONS ON MATERIAL HANDLING AND USAGE. THE CONTRACTOR IS RESPONSIBLE FOR MONITORING AND MAINTAINING SITE CONDITIONS.
- 5) THE CONTRACTOR SHALL STRIP TOPSOIL FROM AREAS TO BE GRADED AND STOCKPILE IT PRIOR TO SITE GRADING OPERATIONS. TOPSOIL SHALL BE STRIPPED TO WHATEVER DEPTH ENCOUNTERED IN A MANNER TO PREVENT INTERMINGLING WITH UNDERLYING SUBSOIL OR OTHER WASTE MATERIALS.
- 6) DO NOT STOCKPILE SOIL MATERIALS NEAR THE EDGE OF EXCAVATIONS OR WITHIN DRIP LINES OF TREES TO REMAIN.
- 7) EXCESS MATERIAL GENERATED FROM TRENCH EXCAVATION OPERATIONS SHALL BE INCORPORATED IN THE UNIT PRICE BID FOR EXCAVATION INCLUDING EMBANKMENT CONSTRUCTION.
- 8) THE CONTRACTOR SHALL PERFORM EXCAVATION AND EMBANKMENT OPERATIONS AS NECESSARY TO CONSTRUCT THE PROPOSED IMPROVEMENTS AND ACHIEVE THE FINISHED GRADES SHOWN ON THE PLANS, EXCEPT AS NOTED:
  - a. STRUCTURAL FILL SHALL BE PLACED AND COMPACTED UNDER ALL BUILDING SLABS, FOOTINGS AND PAVEMENT.
  - b. ENGINEERED FILL SHALL BE PLACED AND COMPACTED UNDER ALL DRIVES, WALKS, STEPS AND RAMPS.
  - c. STRUCTURAL AND ENGINEERED FILL SHALL BE WETTED OR DRIED TO NEAR ITS OPTIMUM MOISTURE CONTENT, PLACED IN LIFTS AND COMPACTED TO A MINIMUM PERCENT COMPACTION, ALL UNDER THE OBSERVATION AND TESTING OF A GEOTECHNICAL ENGINEER.
  - d. SOIL OBTAINED ON-SITE MAY BE USED AS FILL MATERIAL PROVIDED IT IS FREE OF ORGANIC MATTER, DEBRIS, EXCESSIVE MOISTURE, AND ROCK FRAGMENTS 6" AND LARGER.
  - e. NO SLAG, RIVER GRAVEL, RECYCLED PORTLAND CEMENT CONCRETE, RECLAIMED ASPHALT CONCRETE, PAVEMENT OR RECLAIMED BITUMINOUS AGGREGATE BASE MAY BE USED.
  - f. THE CONTRACTOR SHALL DISPOSE OFF-SITE ANY EXCESS OR UNSUITABLE MATERIAL UNABLE TO BE PLACED ON-SITE.
  - g. UNSUITABLE MATERIAL ENCOUNTERED DURING INSTALLATION OF PROPOSED IMPROVEMENTS (I.E. BUILDINGS, UTILITIES, PAVEMENT, ETC.) SHALL BE UNDERCUT AND REPLACED WITH COMPACTED FILL OR STABILIZED IN-PLACE UTILIZING CONVENTIONAL MEASURES SUCH AS DISCING, AERATION OR RECOMPACTION. OTHER MEANS OF STABILIZATION SHALL BE AT THE DISCRETION OF THE OWNER OR GEOTECHNICAL ENGINEER.
- 9) IT IS THE INTENT OF THE SLOPES AND SPOT GRADES NOTED ON THE PLANS TO PROVIDE POSITIVE DRAINAGE TO STORM WATER COLLECTION POINTS. THE CONTRACTOR SHALL REPORT ANY DISCREPANCIES IMMEDIATELY TO THE DESIGN ENGINEER FOR RESOLUTION.
- 10) EXPOSED PAVEMENT SUBGRADE AREAS SHALL BE MAINTAINED IN SUCH CONDITION THAT IT WILL BE WELL DRAINED AT ALL TIMES TO PREVENT PONDING OF WATER AFTER RAINS.
- 11) ALL EXISTING AND PROPOSED MANHOLE COVERS, VALVE BOXES, ETC., LOCATED WITHIN PEDESTRIAN RIGHT-OF-WAYS SHALL BE FLUSH MOUNTED WITH THE WALKING SURFACE.
- 12) BEFORE ACCEPTANCE OF THE SUB-GRADE UNDER BUILDING SLABS OR PAVEMENT, A PROOF ROLL TO IDENTIFY SOFT POCKETS AND AREAS OF EXCESS YIELDING SHALL BE PERFORMED IN THE PRESENCE OF THE DESIGN ENGINEER USING A PNEUMATIC-TIRED AND LOADED 10-WHEEL, TANDEM-AXLE DUMP TRUCK WEIGHING NOT LESS THAN FIFTEEN (15) TONS AT A MAXIMUM VEHICLE SPEED OF 3 MPH. DO NOT PROOF-ROLL WET OR SATURATED SUBGRADES. THE CONTRACTOR SHALL EXCAVATE SOFT SPOTS, UNSATISFACTORY SOILS AND AREAS OF EXCESSIVE PUMPING OR RUTTING, AS DETERMINED BY THE DESIGN ENGINEER, AND REPLACE WITH COMPACTED BACKFILL, AS DIRECTED BY THE DESIGN ENGINEER OR GEOTECHNICAL ENGINEER. AUTHORIZED ADDITIONAL EXCAVATION AND REPLACEMENT MATERIAL SHALL BE PAID ACCORDING TO THE CONTRACT UNIT PRICES.
- 13) THE CONTRACTOR SHALL RECONSTRUCT ANY SUBGRADE DAMAGED BY FREEZING TEMPERATURES, FROST, RAIN, ACCUMULATED WATER OR CONSTRUCTION ACTIVITIES WITHOUT ADDITIONAL COMPENSATION.

**UTILITY NOTES:**

- 1) THE CONTRACTOR SHALL PROTECT, SUPPORT AND SHORE UP ANY EXISTING UTILITY ENCOUNTERED DURING CONSTRUCTION AND COORDINATE ALL WORK TO BE PERFORMED WITH EACH RESPECTIVE UTILITY COMPANY, INCLUDING WORK BEING PERFORMED DIRECTLY BY THE UTILITY COMPANIES, FOR MAIN OR SERVICE CONNECTIONS, DISCONNECTIONS, RELOCATIONS, DEMOLITION AND INSPECTIONS. THE CONTRACTOR SHALL SECURE AND PAY FOR ANY PERMITS, FEES AND UTILITY COMPANY CHARGES.
- 2) THE CONTRACTOR SHALL BE RESPONSIBLE TO DETERMINE THE NECESSARY LEVELS OF PROTECTION AND SAFEGUARDING OF ALL OPEN TRENCHES, WHEN WORK IS EITHER ACTIVE, COMPLETED AT THE END OF THE DAY OR SUSPENDED FOR ANY OTHER REASON. THIS INCLUDES TRENCH PROTECTION SUCH AS TRENCH BOXES, WOOD SHEETING AND BRACING, OR ANY OTHER METHOD DETERMINED BY THE CONTRACTOR TO MAINTAIN A SAFE WORKING ENVIRONMENT. ALL EXCAVATIONS SHALL COMPLY WITH APPLICABLE LAWS AND REGULATIONS (FEDERAL, STATE AND LOCAL).
- 3) WHERE THE PLANS PROVIDE FOR NEW CONDUIT TO BE CONNECTED TO OR CROSS OVER OR UNDER AN EXISTING UTILITY, THE CONTRACTOR SHALL LOCATE THE EXISTING UTILITY BOTH AS TO LINE AND GRADE BEFORE BEGINNING TO LAY THE NEW CONDUIT.
- 4) THE CONTRACTOR SHALL JET-CLEAN ALL STORM SEWERS AND VACUUM CLEAN ALL MANHOLES AND CATCH BASINS BEFORE ACCEPTANCE BY THE OWNER.
- 5) ROOF DRAINS, FOUNDATION DRAINS AND OTHER CLEAN WATER CONNECTIONS TO THE SANITARY SEWER SYSTEM ARE PROHIBITED.
- 6) **STORM SEWERS**  
STORM MAIN SEWERS SHALL BE ONE OF THE FOLLOWING:
  - a. POLYVINYL CHLORIDE PIPE (PVC) 4" - 15" DIAMETER
    - ALL POLYVINYL CHLORIDE PIPE IN THIS SIZE RANGE SHALL CONFORM TO ASTM D-3034 SDR 35, SHALL BE INTEGRAL BELL AND SPIGOT TYPE, WITH JOINTS CONFORMING TO ASTM D-3212 AND ELASTOMERIC SEALS CONFORMING TO ASTM F-477.
    - ALL PIPE AND FITTINGS SHALL BE MARKED OR STENCILED IN CONFORMANCE WITH ASTM D-3034. ALL GASKETS SHALL BE MARKED OR STENCILED WITH THE ASTM SPECIFICATION DESIGNATION, NAME OR TRADEMARK OF THE MANUFACTURER, AND PIPE SIZE.
  - b. POLYVINYL CHLORIDE PIPE (PVC) 18" - 27" DIAMETER
    - ALL LARGE DIAMETER POLYVINYL CHLORIDE PIPE SHALL CONFORM TO ASTM F-679, SHALL BE INTEGRAL BELL AND SPIGOT TYPE, WITH JOINTS CONFORMING TO ASTM D-3212 AND ELASTOMERIC SEALS CONFORMING TO ASTM F-477.
    - ALL PIPE AND FITTINGS SHALL BE MARKED OR STENCILED IN CONFORMANCE WITH ASTM F-679. ALL GASKETS SHALL BE MARKED OR STENCILED WITH THE ASTM SPECIFICATION DESIGNATION, NAME OR TRADEMARK OF THE MANUFACTURER, AND PIPE SIZE.
  - c. CORRUGATED POLYETHYLENE PIPE 12" DIAMETER AND LARGER
    - ALL CORRUGATED POLYETHYLENE PIPE IN THIS SIZE RANGE SHALL BE SMOOTH LINED CONFORMING TO ODOT 707.33. ALL PIPE AND FITTINGS SHALL BE MARKED OR STENCILED WITH THE APPROPRIATE CLASSIFICATION.
  - d. REINFORCED CONCRETE PIPE
    - ALL REINFORCED CONCRETE CIRCULAR PIPE SHALL BE CLASS IV PIPE, CONFORMING TO ASTM C-76. JOINTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM C-443 AS IT PERTAINS TO THE USE OF CONFINED O-RING RUBBER GASKETS PLACED IN GROOVES CAST IN THE SPIGOT OF THE PIPE SUCH THAT THE GASKETS WILL BE ENCLOSED ON ALL SIDES WHEN THE PIPE IS LAID AND THE JOINT IS COMPLETED. CEMENT USED IN MANUFACTURING PIPE AND FITTINGS SHALL BE TYPE I CONFORMING TO ASTM C-150.
    - ALL PIPE AND FITTINGS SHALL BE MARKED OR STENCILED WITH THE APPLICABLE ASTM SPECIFICATION DESIGNATION ON THE INTERIOR SURFACE OF THE PIPE. ALL GASKETS SHALL BE MARKED OR STENCILED WITH THE ASTM SPECIFICATION DESIGNATION, NAME OR TRADEMARK OF THE MANUFACTURER, AND PIPE SIZE.
- 9) ALL STORM SEWER JOINTS AND PIPES SHALL BE WATERTIGHT.
- 10) **SANITARY SEWERS**
  - a. ALL SANITARY SEWER WORK COMPLETED MUST BE IN ACCORDANCE WITH THE CURRENT REGULATIONS AND RULES OF THE CITY OF WILLOUGHBY.
  - b. ALL SANITARY SEWER CONNECTIONS SHALL BE A MINIMUM OF 6" DIAMETER AND SHALL HAVE PREMIUM JOINTS.
  - c. ALL SANITARY SEWER TRENCHES SHALL BE BACKFILLED PER TRENCH AND BEDDING DETAIL.
  - d. THE SANITARY SEWER SYSTEM SHALL BE SUBJECT TO FLUSH AND VIDEO PHOTOGRAPHY AFTER CONSTRUCTION HAS BEEN COMPLETED AND PRIOR TO FINAL ACCEPTANCE.
  - e. NO SANITARY SEWER SERVICE CONNECTIONS TO ANY BUILDING SHALL BE PERMITTED PRIOR TO THE FINAL ACCEPTANCE BY THE CITY OF WILLOUGHBY ENGINEER WHICH SHALL INCLUDE APPROVED RECTIFICATION OF ALL PUNCH LIST ITEMS AND THE SUBMITTAL OF MYLAR AS-BUILT DRAWINGS.
  - f. SANITARY SEWER WORK SHALL NOT BEGIN UNTIL AREAS OF SEWER CONSTRUCTION ARE ROUGH GRADED.
  - g. LOW STRENGTH MORTAR (LSM) REQUIRED AROUND ALL STRUCTURES IN PAVEMENT IN ACCORDANCE WITH ODOT 613 SPECIFICATIONS.
  - h. ALL SANITARY SEWER PIPE SHALL BE PVC SDR 26 WITH ASTM D3212 JOINT SPECIFICATION AND ASTM D2321 BEDDING SPECIFICATION.

**GENERAL WATERLINE INSTALLATION NOTES**

1. CONTRACTOR TO PROVIDE LINE AND GRADE STAKES AT 100' INTERVALS FOR WATER MAIN AND FOR EACH FITTING AND APPURTENANCE. A COPY OF CUT SHEET SHALL BE PROVIDED TO FIELD INSPECTOR PRIOR TO INSTALLATION.
2. WATER WORK SHALL NOT BEGIN UNTIL AREAS OF WATERLINE CONSTRUCTION ARE ROUGH GRADED (WITHIN 1FT. OF FINISHED GRADE) AND FILL AREAS ARE COMPLETED AND COMPACTED.)
3. NO WATER SERVICE CONNECTIONS TO ANY BUILDINGS SHALL BE PERMITTED PRIOR TO FINAL ACCEPTANCE BY AQUA OHIO, INC. WHICH SHALL INCLUDE APPROVED RECTIFICATION OF ALL PUNCH LIST ITEMS. ONCE PUNCH LIST ITEMS ARE COMPLETED, THE BUILDER SHALL BE RESPONSIBLE FOR GRADE ADJUSTMENTS TO WATER FACILITIES AT TIME OF BUILDING CONSTRUCTION AND DURING FINAL SITE GRADING.
4. A MINIMUM OF 5 FEET HORIZONTAL SEPARATION SHALL BE MAINTAINED BETWEEN UTILITY CONDUIT CROSSOVERS AND WATERLINE APPURTENANCES, I.E. HYDRANTS, VALVES, TEES, ETC.
5. WATER LINE MATERIALS AND INSTALLATION PROCEDURES SHALL MEET OR EXCEED ALL APPLICABLE A.W.W.A. STANDARDS INCLUDING BUT NOT LIMITED TO THE MOST RECENT VERSIONS OF C600 AND C651.
6. WATERLINE MATERIAL AND INSTALLATION PROCEDURES SHALL BE IN ACCORDANCE WITH AQUA OHIO SPECIFICATIONS. PRESSURE CLASS 350 D.I.P. POLYWRAPPED, FITTINGS CLASS 53 CEMENT LINED POLYWRAPPED AND 1" TYPE "K" COPPER WITH COMPRESSION FITTINGS FOR DOMESTIC SERVICES OR 2" HDPE SDR 9 POLYETHYLENE 3408 PIPE AROUND CUL-DE-SAC. IF POLYETHYLENE IS USED, A 12 GAUGE WIRE AND METALLIC CAUTION TAPE MUST BE USED.
7. ALL PIPE AND APPURTENANCES INSTALLED ON A DEPRESSURIZED WATER MAIN ARE TO BE WIPED CLEAN AND ALL INTERIOR SURFACES SATURATED WITH A MINIMUM 1% CHLORINE SOLUTION.
8. ALL MECHANICAL JOINTS ARE TO BE RESTRAINED USING MEGALUG OR "FORD" EQUIVALENT. FIRE LINE RISERS TO INCLUDE (2) 5/8" ALL THREAD RODS EXTENDING FROM LOWER BEND TO RISER FLANGE.
9. A RESTRAINT GASKET (FIELD-LOK OR APPROVED EQUAL) SHALL BE UTILIZED ON PUSH-ON JOINTS AS REQUIRED BY AQUA OHIO STANDARDS.
10. ALL DUCTILE IRON PIPE AND FITTINGS TO BE POLYWRAPPED AND TAPED AS PER DUCTILE IRON RESEARCH ASSOCIATION RECOMMENDATIONS.
11. DUCTILE IRON IN CASING SHALL BE CLASS 52, POLYWRAPPED AND ALL PUSH-ON JOINTS SHALL BE EQUIPPED WITH RESTRAINT GASKETS (FIELD-LOK OR APPROVED EQUAL) AND STAINLESS STEEL CASING SPACERS ARE REQUIRED.
12. ALL THRUST BLOCKING WILL BE SOLID CONCRETE BLOCKS WITH OAK WEDGES OR POURED CONCRETE, PER AQUA STANDARDS DRAWING.
13. ALL VALVES ARE OPEN LEFT AND ALL MAIN LINE VALVES ARE TO BE PLACED ON A MINIMUM OF ONE 4" SOLID CONCRETE BLOCK. ALL VALVES TO HAVE #57 LIMESTONE UP TO OPERATING NUT OF VALVE.
14. ALL FIRE HYDRANTS TO HAVE A MINIMUM OF 1/2 CUBIC YARD OF #57 LIMESTONE 6" ABOVE DRAIN HOLE OR EQUIVALENT SIZE BANK RUN GRAVEL. PLASTIC SHALL BE PLACED OVER STONE PRIOR TO BACKFILL. ALL HYDRANTS TO BE TURNED WITH 4-1/2" NOZZLE FACING STREET WITH 5" STORZ HYDRANT FITTING AND MEETING FIRE DEPARTMENT SPECIFICATIONS.
15. ALL VALVE BOX COVERS ARE TO BE PAINTED BLUE. CONTRACTOR RESPONSIBLE FOR ADJUSTMENT TO VALVE BOXES, CURB BOXES, AND FIRE HYDRANTS WITH RESPECT TO FINAL GRADING. ALL VALVES BOXES IN NEW OR PROPOSED PAVEMENT SHALL BE SCREW TYPE.
16. WATERLINE WILL NOT BE ACCEPTED OR PLACED IN SERVICE UNTIL CONTRACTOR CONDUCTS AND OBTAINS SATISFACTORY RESULTS OF PRESSURE AND CHLORINE TESTS. BACTERIA TEST WILL THEN BE CONDUCTED BY AQUA OHIO. ALL VALVES, HYDRANTS, AND CURB BOXES TO BE PROPER GRADE PRIOR TO ACCEPTANCE.
17. THE CONTRACTOR SHALL TAKE PRECAUTIONARY MEASURES TO ENSURE SAFETY OF THE PUBLIC ON AND SURROUNDING THE SITE DURING CONSTRUCTION.
18. THE LOCATION OF EXISTING UTILITIES AND STRUCTURES, BOTH ABOVE GROUND UNDERGROUND ARE SHOWN ON THE PLANS FROM DATA AVAILABLE AT THE TIME OF THE SURVEY AND ARE NOT NECESSARILY COMPLETE AND/ OR CORRECT. THE EXACT LOCATION AND PROTECTION OF EXISTING UTILITIES AND STRUCTURES IS THE RESPONSIBILITY OF THE CONTRACTOR. DURING THE CONSTRUCTION, THE CONTRACTOR SHALL USE DUE DILIGENCE IN PROTECTING FROM DAMAGE EXISTING UTILITIES AND STRUCTURES WHETHER SHOWN ON PLANS OR NOT. IF DAMAGE IS CAUSED, THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIR OR RESTORATION OF SAME IN ACCORDANCE WITH THE DIRECTIONS OF THE OWNER. THE CONTRACTOR SHALL CONTACT OHIO UTILITIES PROTECTION SERVICES, AT 1-800-362-2764, TWO WORKING DAYS PRIOR TO START OF CONSTRUCTION AS REQUIRED BY OHIO LAW.
19. THE WATERLINE SHALL BE INSTALLED AT 4'-0" OF COVER FROM EXISTING/ PROPOSED GRADE TO TOP OF THE WATERLINE. THIS 4' SHALL BE MAINTAINED UNLESS OTHERWISE NOTED.
20. A MINIMUM OF 10'-0" HORIZONTAL SEPARATION MUST BE MAINTAINED BETWEEN ALL STORM AND SANITARY SEWER AND WATERLINE, OUT TO OUT.
21. A MINIMUM 18" VERTICAL SEPARATION MUST BE MAINTAINED BETWEEN ALL STORM AND SANITARY SEWERS AND WATERLINE, OUT TO OUT.
22. DRIVEWAY RESTORATION SHALL BE AS FOLLOWS: CONCRETE DRIVEWAYS WILL BE REPLACED FROM THE NEAREST EXISTING JOINT TO THE STREET. FULL SLAB REPLACEMENT, ASPHALT DRIVEWAYS WILL BE REPLACED FROM THE FARTHEST TRENCH CUT LINE TO THE STREET. REPAIRING ONLY THE TRENCH WIDTH CUT ACROSS A DRIVEWAY ONLY IS NOT ACCEPTABLE.
23. THE CONTRACTOR SHALL VISIT THE SITE TO PERSONALLY ASCERTAIN THE NATURE OF THE WORK INVOLVED AND THOROUGHLY BECOME FAMILIAR WITH THE SITE PRIOR TO THE SUBMISSION ON HIS OR HER BID.
24. THE CONTRACTOR SHALL CAREFULLY LAYOUT THE WATERLINE AND ALL RELATED FACILITIES TO ENSURE THAT THEY ARE LOCATED WITHIN THE PUBLIC RIGHT-OF-WAY AND/ OR ACQUIRED EASEMENTS AS INDICATED.
25. THE CONTRACTOR IS RESPONSIBLE FOR RESTORING THE SITE (YARDS, DITCHES, DRIVEWAYS, ETC.) TO ITS ORIGINAL OR BETTER CONDITION UPON COMPLETION OF THE WATERLINE INSTALLATION.
26. THE CONTRACTOR MAY DEFLECT THE WATERLINE AS PER MANUFACTURE'S SPECS WITH PERMISSION FROM AQUA AS NEEDED TO MAINTAIN MINIMUM HORIZONTAL AND VERTICAL SEPARATION DISTANCES.
27. THE CONTRACTOR SHALL CAREFULLY PRESERVE BENCHMARKS, PROPERTY CORNERS, REFERENCE POINTS, AND STAKES. ANY BENCHMARK, PROPERTY CORNER, OR SURVEY MARKER DAMAGED OR DISRUPTED BY THE CONTRACTOR SHALL BE RESET BY AN OHIO REGISTERED PROFESSIONAL SURVEYOR AT THE CONTRACTORS EXPENSE.
28. ALL MAIL BOXES, TRAFFIC CONTROL SIGNS AND ADVERTISING SIGNS ENCOUNTERED DURING CONSTRUCTION SHALL BE REPLACED IMMEDIATELY AFTER THE WATER MAIN HAS BEEN INSTALLED AND BACKFILLED. TEMPORARY SIGNS TO BE USED AS NEEDED.
29. BOOSTER PUMPS ARE NOT PERMITTED ON SERVICE CONNECTIONS.
30. WATER SERVICE LINE CONNECTIONS ARE NOT TO BE INSTALLED UNTIL PRESSURE TEST AND BACTERIA TESTS HAVE BEEN APPROVED.
31. THE NORMAL WORKING PRESSURE IN WATER LINES SHALL NOT BE LESS THAN 35 PSI.
32. THE CONTRACTOR SHALL FOLLOW AQUA TAPPING PROCEDURE WHEN MAKING TAPS ON AN EXISTING WATER MAIN. THIS INCLUDES TAPS FOR WATER SERVICES, DEVELOPER MAIN EXTENSIONS, MAIN REPLACEMENT EXTENSIONS, AND HYDRANT TAPS.

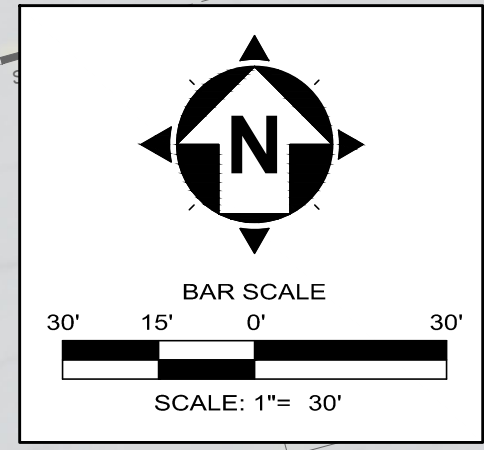


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DESIGNED BY:				
DRAWN BY:				
CHECKED BY:				

**LAKELAND TRANSFER CENTER**  
LAKELAND COMMUNITY COLLEGE  
7601 CLOCKTOWER DR., KIRTLAND, OH 44094

**GENERAL NOTES**

PROJECT NO.	<b>18050002</b>
DISCIPLINE	<b>CIVIL</b>
SHEET NAME	<b>G-02</b>
SHEET	OF
<b>5</b>	<b>55</b>

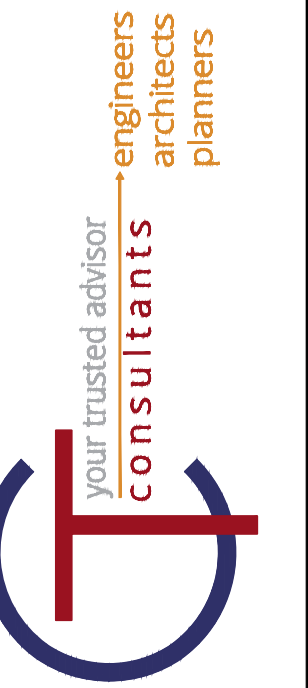
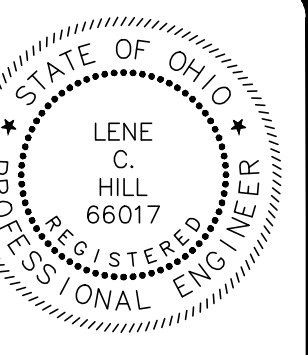
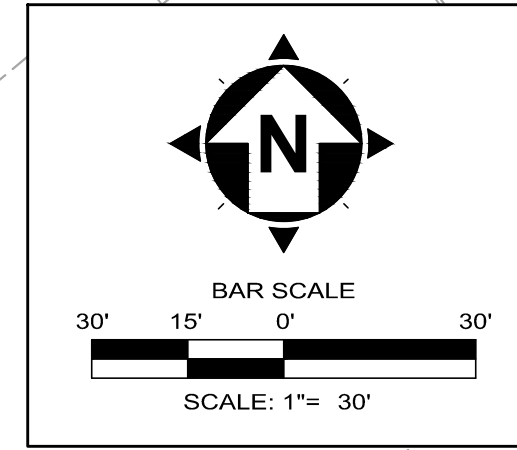


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**LAKELAND TRANSFER CENTER**  
**LAKELAND COMMUNITY COLLEGE**  
 7601 CLOCKTOWER DR., KIRTLAND, OH 44094

**EXISTING CONDITIONS**

PROJECT NO.	<b>18050002</b>
DISCIPLINE	<b>CIVIL</b>
SHEET NAME	<b>C_01</b>
SHEET	<b>6</b>
OF	<b>55</b>

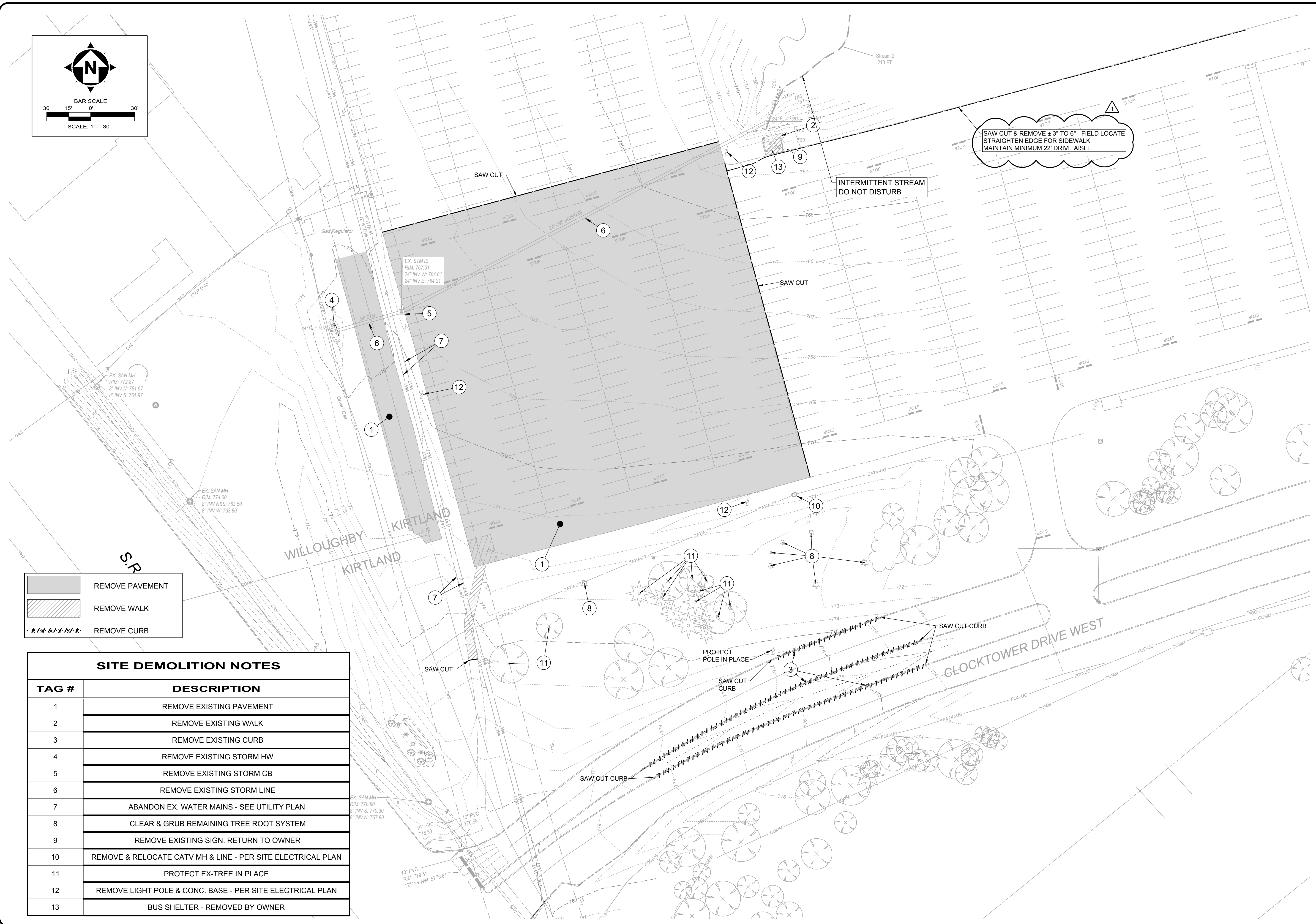


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ISSUE DATE:	8/5/2019			8/05/2019
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PROJECT NO.	18050002
DISCIPLINE	CIVIL
SHEET NAME	C_02
SHEET	7
OF	55

**DEMOLITION PLAN**



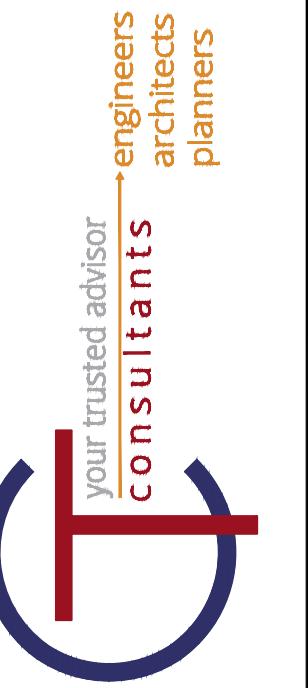
**SITE DEMOLITION NOTES**

TAG #	DESCRIPTION
1	REMOVE EXISTING PAVEMENT
2	REMOVE EXISTING WALK
3	REMOVE EXISTING CURB
4	REMOVE EXISTING STORM HW
5	REMOVE EXISTING STORM CB
6	REMOVE EXISTING STORM LINE
7	ABANDON EX. WATER MAINS - SEE UTILITY PLAN
8	CLEAR & GRUB REMAINING TREE ROOT SYSTEM
9	REMOVE EXISTING SIGN. RETURN TO OWNER
10	REMOVE & RELOCATE CATV MH & LINE - PER SITE ELECTRICAL PLAN
11	PROTECT EX-TREE IN PLACE
12	REMOVE LIGHT POLE & CONC. BASE - PER SITE ELECTRICAL PLAN
13	BUS SHELTER - REMOVED BY OWNER

H:\2018\18050002\DWG\SHEET\C\_02\_02\_18050002.dwg - C\_02\_18050002.dwg - 8/5/2019 1:25:58 PM - GEORGE STEVENS





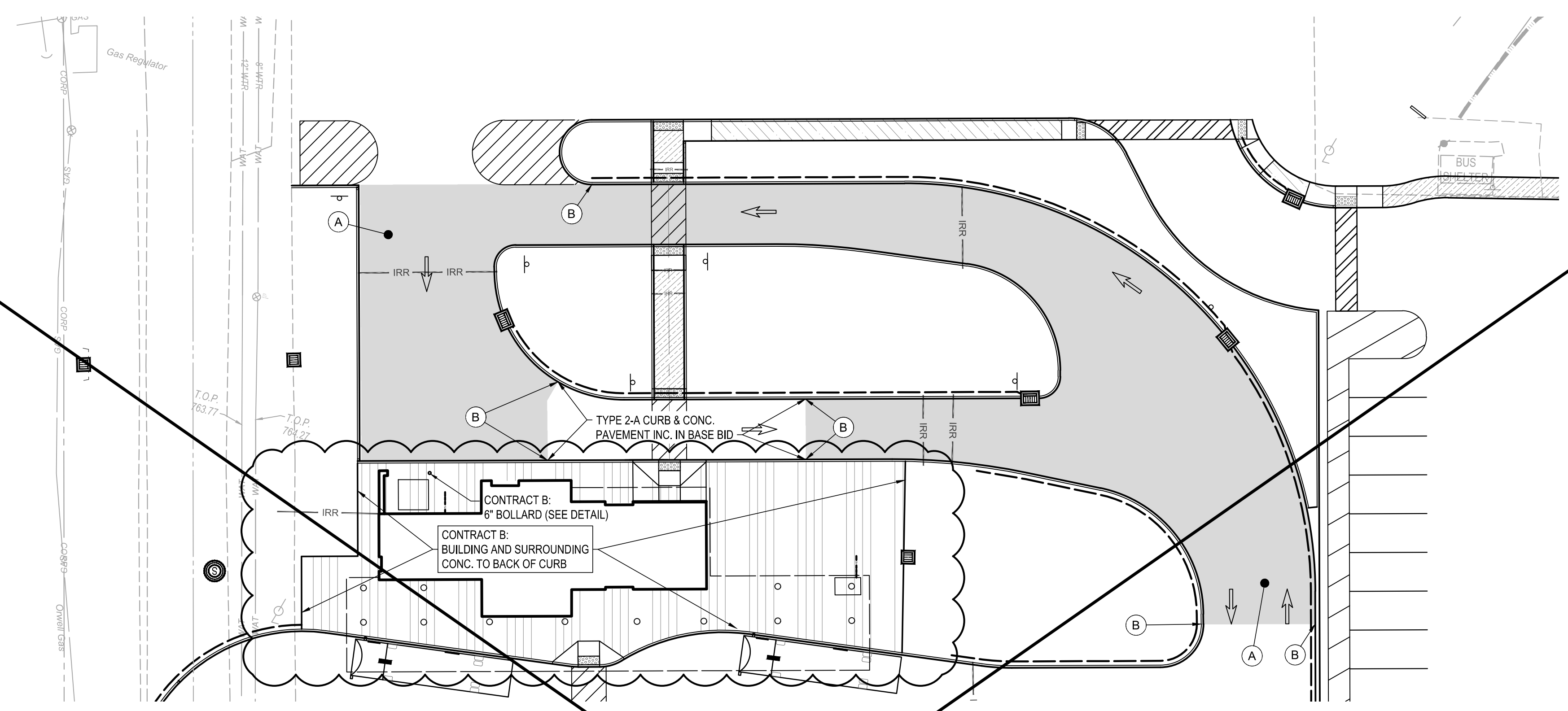


ISSUED FOR:	CD	NO	REVISION	DATE
ISSUE DATE:	8/5/2019	1	REBID REVISION	8/05/2019
SCALE:	AS SHOWN			
DESIGNED BY:	LCH / GMS			
DRAWN BY:	GMS			
CHECKED BY:	LCH			

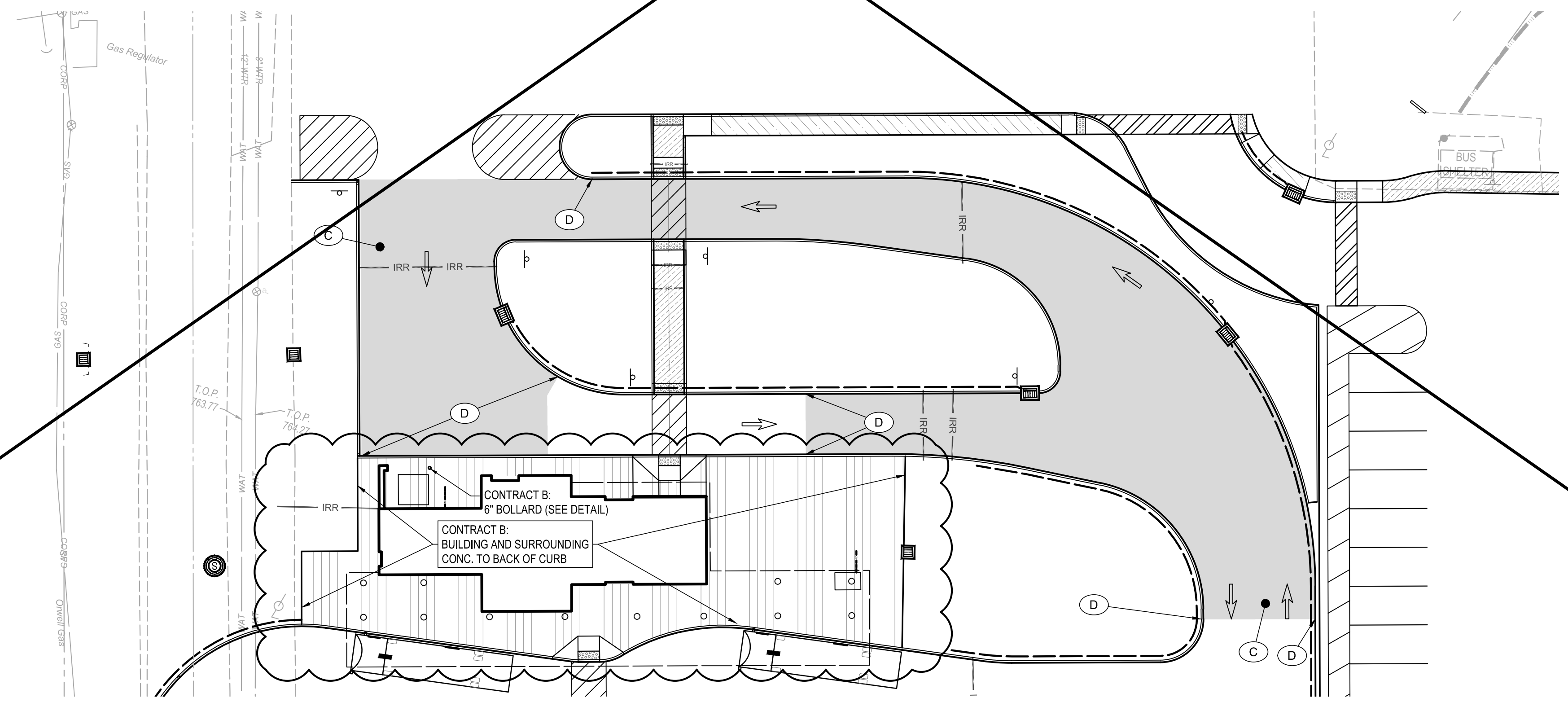
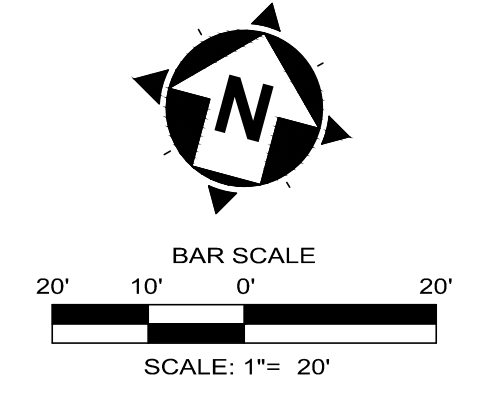
**LAKELAND TRANSFER CENTER**  
**LAKELAND COMMUNITY COLLEGE**  
 7601 CLOCKTOWER DR., KIRTLAND, OH 44094

PROJECT NO.	<b>18050002</b>
DISCIPLINE	<b>CIVIL</b>
SHEET NAME	<b>C_04</b>
SHEET	<b>9</b>
OF	<b>55</b>

**SITE PLAN -**  
**ALT. 1 & ALT. 2**



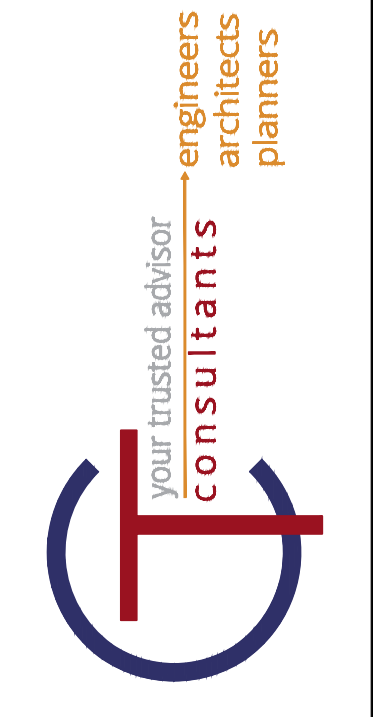
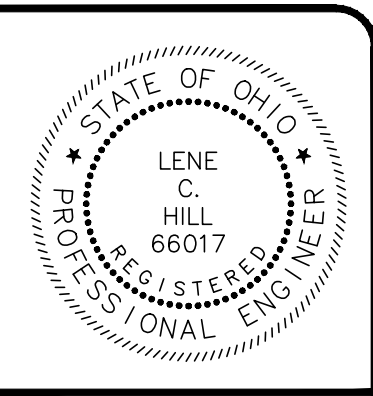
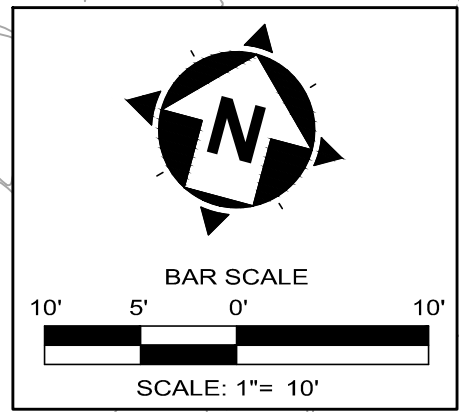
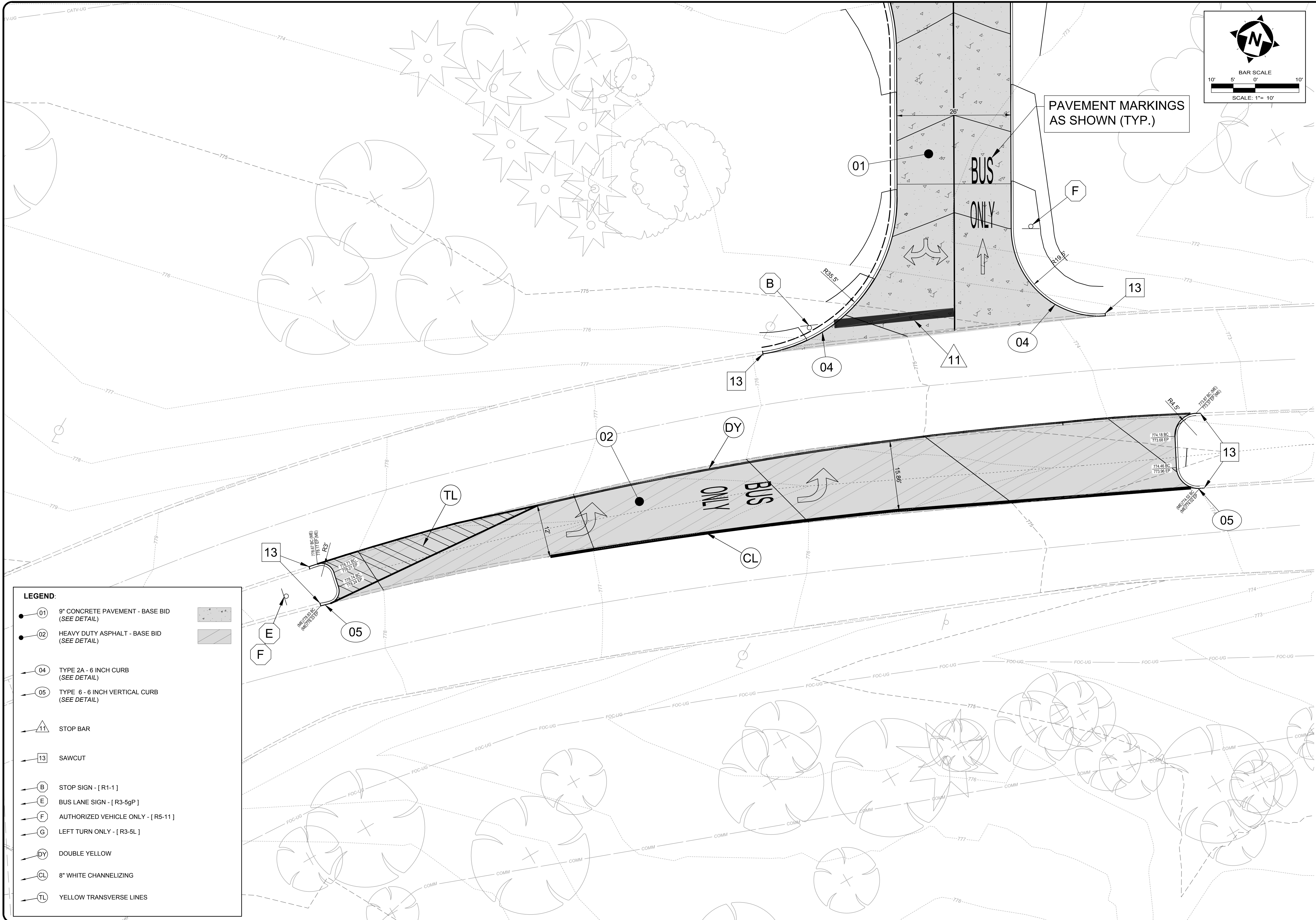
ALTERNATE 1 - HD ASPHALT



ALTERNATE 2 - 9" CONCRETE PAVEMENT

**LEGEND:**

	HEAVY DUTY ASPHALT - ALT 1 (SEE DETAIL)		TYPE 6 - 6 INCH VERTICAL CURB - ALT 1(SEE DETAIL)
	9" CONCRETE PAVEMENT - ALT 2 (SEE DETAIL)		TYPE 2A - 6 INCH CURB - ALT 2 (SEE DETAIL)
	6" CONCRETE WALK WITH INTEGRATED CURB - CONTRACT A (SEE DETAIL)		
	6" CONCRETE WALK - CONTRACT A (SEE DETAIL)		
	6" CONCRETE WALK - CONTRACT B		



ISSUED FOR:	CD	NO	REVISION	DATE
ISSUE DATE:	8/5/2019			
SCALE:	AS SHOWN			
DESIGNED BY:	LCH / GMS			
DRAWN BY:	GMS			
CHECKED BY:	LCH			

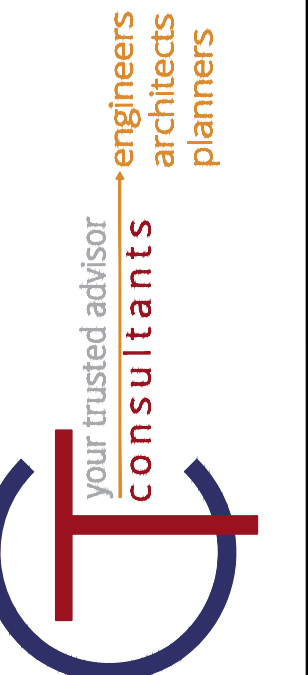
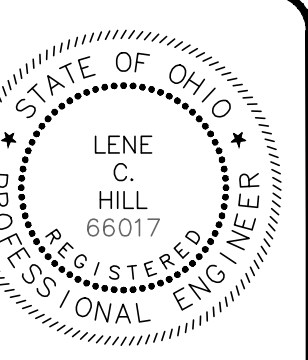
**LEGEND:**

- 01 9" CONCRETE PAVEMENT - BASE BID (SEE DETAIL)
- 02 HEAVY DUTY ASPHALT - BASE BID (SEE DETAIL)
- ← 04 TYPE 2A - 6 INCH CURB (SEE DETAIL)
- ← 05 TYPE 6 - 6 INCH VERTICAL CURB (SEE DETAIL)
- ▲ 11 STOP BAR
- ← 13 SAWCUT
- ← B STOP SIGN - [ R1-1 ]
- ← E BUS LANE SIGN - [ R3-5gP ]
- ← F AUTHORIZED VEHICLE ONLY - [ R5-11 ]
- ← G LEFT TURN ONLY - [ R3-5L ]
- ← DY DOUBLE YELLOW
- ← CL 8" WHITE CHANNELIZING
- ← TL YELLOW TRANSVERSE LINES

**LAKELAND TRANSFER CENTER**  
**LAKELAND COMMUNITY COLLEGE**  
 7601 CLOCKTOWER DR., KIRTLAND, OH 44094

**TURN LANE SITE & GRADE PLAN**

PROJECT NO.	<b>18050002</b>
DISCIPLINE	<b>CIVIL</b>
SHEET NAME	<b>C_05</b>
SHEET	<b>10</b>
OF	<b>55</b>

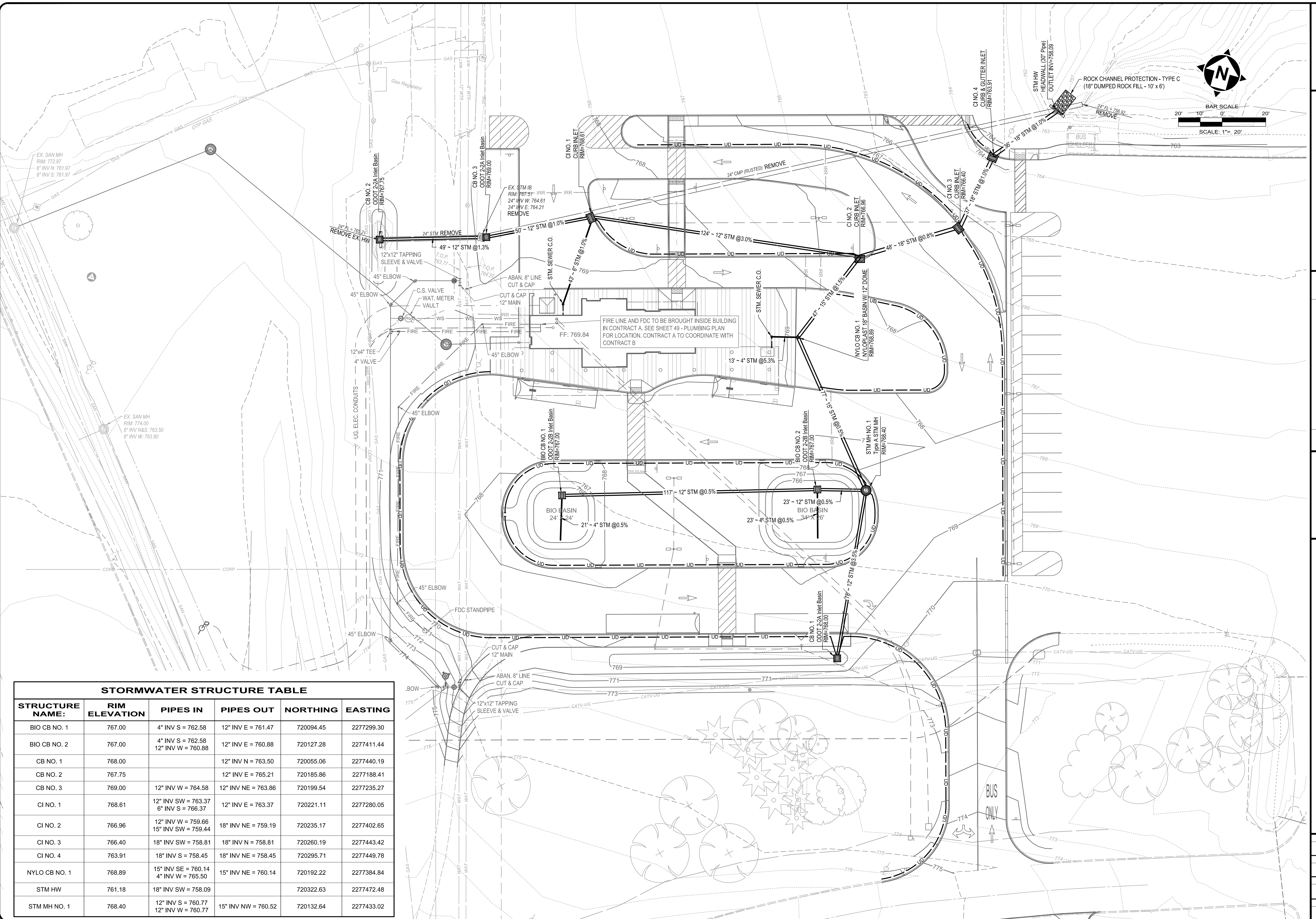


ISSUED FOR:	CD	NO	REVISION	DATE
8/5/2019	B	2019		
AS SHOWN				
LCH / GMS				
GMS				
LCH				

**LAKELAND TRANSFER CENTER**  
**LAKELAND COMMUNITY COLLEGE**  
 7601 CLOCKTOWER DR., KIRTLAND, OH 44094

PROJECT NO.	<b>18050002</b>
DISCIPLINE	<b>CIVIL</b>
SHEET NAME	<b>C_05</b>
SHEET	OF
<b>11</b>	<b>55</b>

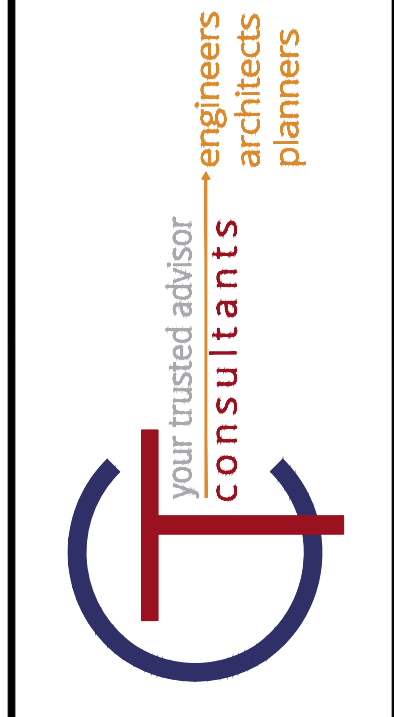
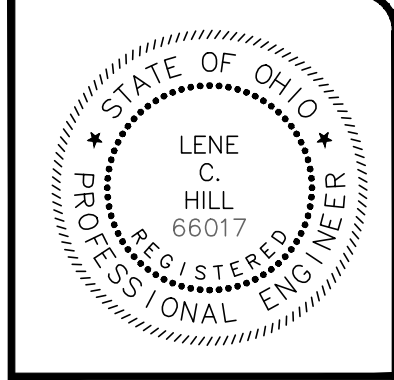
**STORM SEWER PLAN**



**STORMWATER STRUCTURE TABLE**

STRUCTURE NAME:	RIM ELEVATION	PIPES IN	PIPES OUT	NORTHING	EASTING
BIO CB NO. 1	767.00	4" INV S = 762.58	12" INV E = 761.47	720094.45	2277299.30
BIO CB NO. 2	767.00	4" INV S = 762.58 12" INV W = 760.88	12" INV E = 760.88	720127.28	2277411.44
CB NO. 1	768.00		12" INV N = 763.50	720055.06	2277440.19
CB NO. 2	767.75		12" INV E = 765.21	720185.86	2277188.41
CB NO. 3	769.00	12" INV W = 764.58	12" INV NE = 763.86	720199.54	2277235.27
CI NO. 1	768.61	12" INV SW = 763.37 6" INV S = 766.37	12" INV E = 763.37	720221.11	2277280.05
CI NO. 2	766.96	12" INV W = 759.66 15" INV SW = 759.44	18" INV NE = 759.19	720235.17	2277402.65
CI NO. 3	766.40		18" INV N = 758.81	720260.19	2277443.42
CI NO. 4	763.91	18" INV S = 758.45	18" INV NE = 758.45	720295.71	2277449.78
NYLO CB NO. 1	768.89	15" INV SE = 760.14 4" INV W = 765.50	15" INV NE = 760.14	720192.22	2277384.84
STM HW	761.18	18" INV SW = 758.09		720322.63	2277472.48
STM MH NO. 1	768.40	12" INV S = 760.77 12" INV W = 760.77	15" INV NW = 760.52	720132.64	2277433.02

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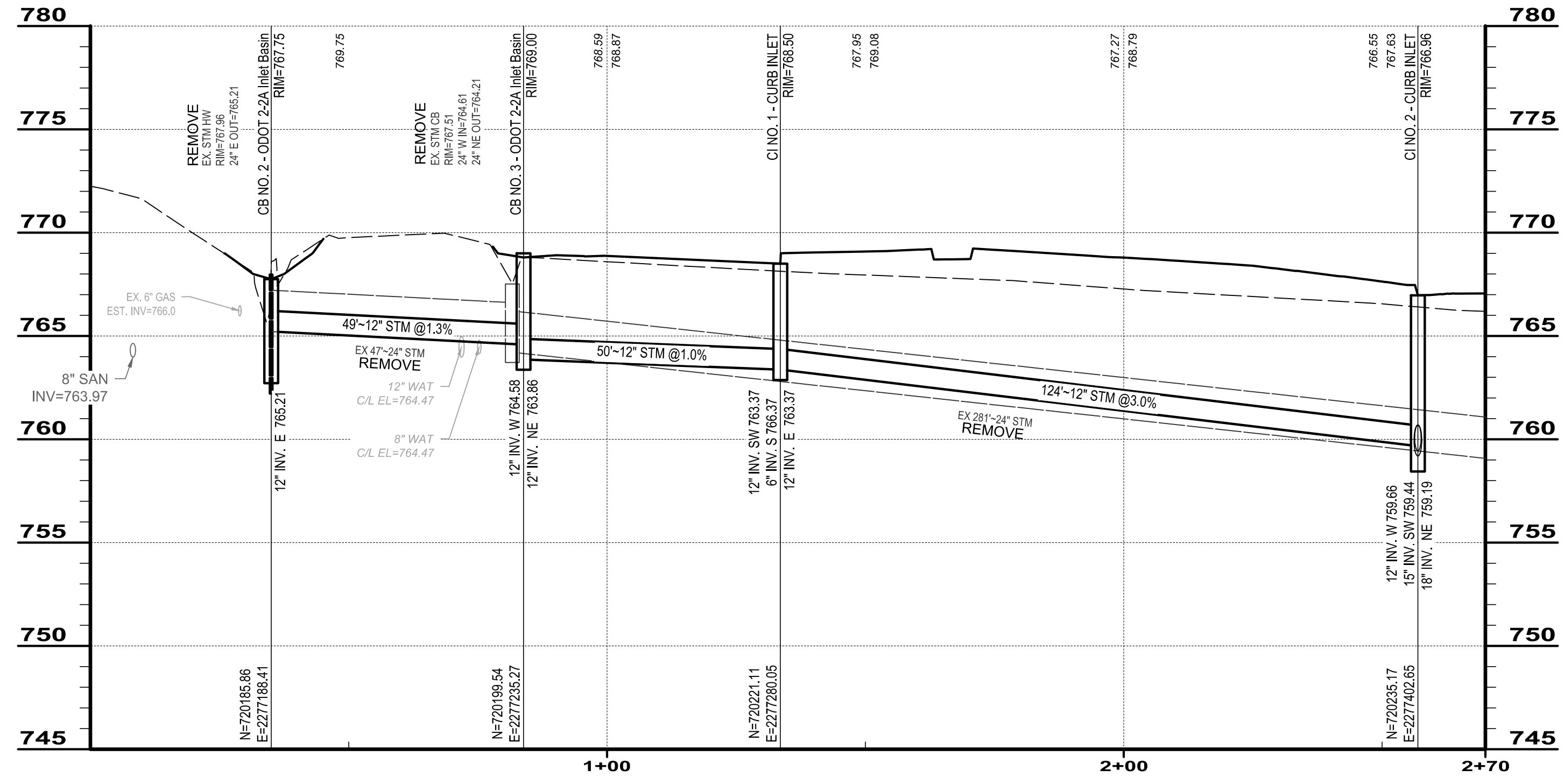


ISSUED FOR:	CD	NO	REVISION	DATE
8/5/2019 <td></td> <td></td> <td></td> <td></td>				
AS SHOWN <td></td> <td></td> <td></td> <td></td>				
LCH / GMS <td></td> <td></td> <td></td> <td></td>				
GMS <td></td> <td></td> <td></td> <td></td>				
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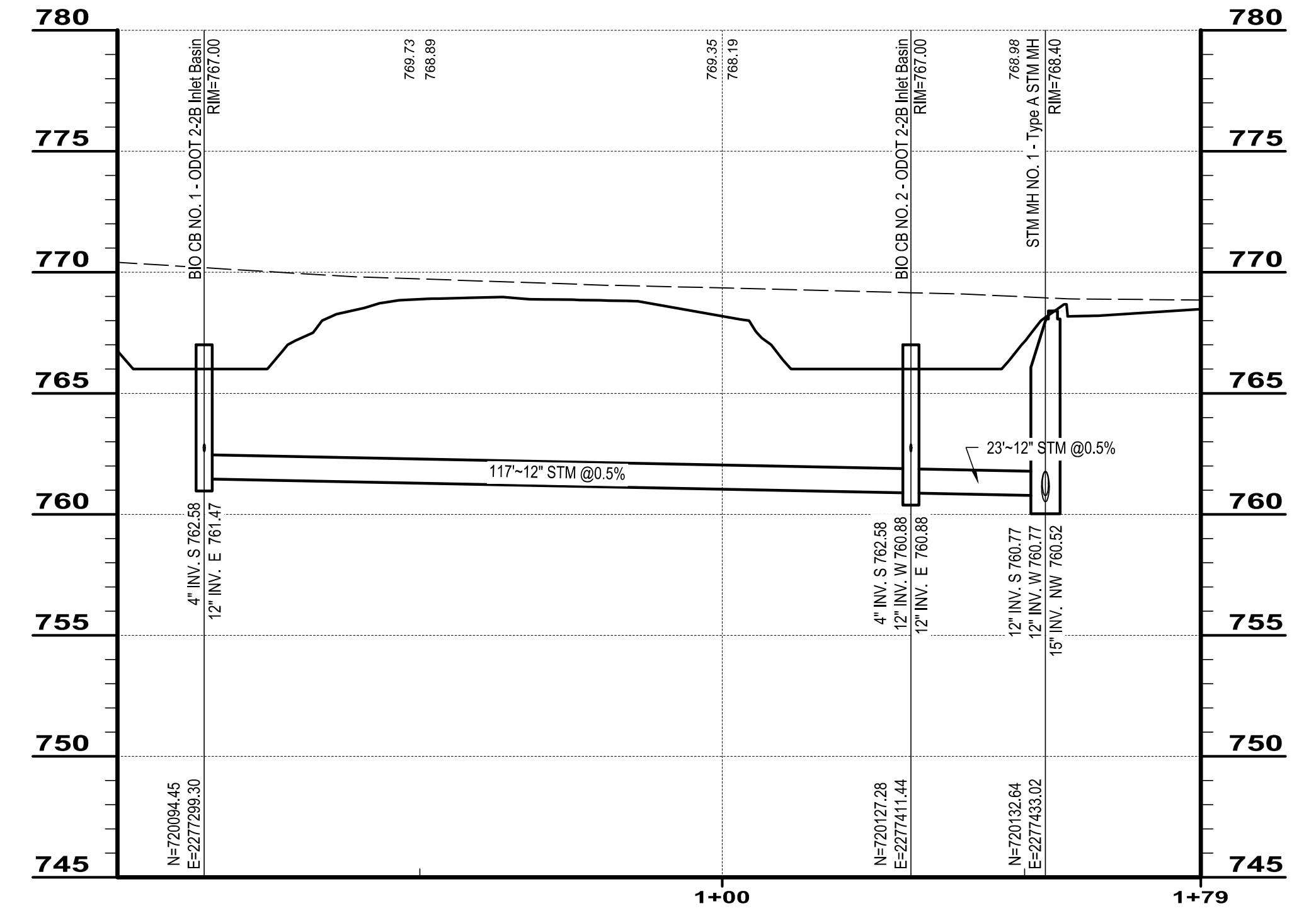
**LAKELAND TRANSFER CENTER**  
**LAKELAND COMMUNITY COLLEGE**  
 7601 CLOCKTOWER DR., KIRTLAND, OH 44094

**STORM SEWER PROFILE**

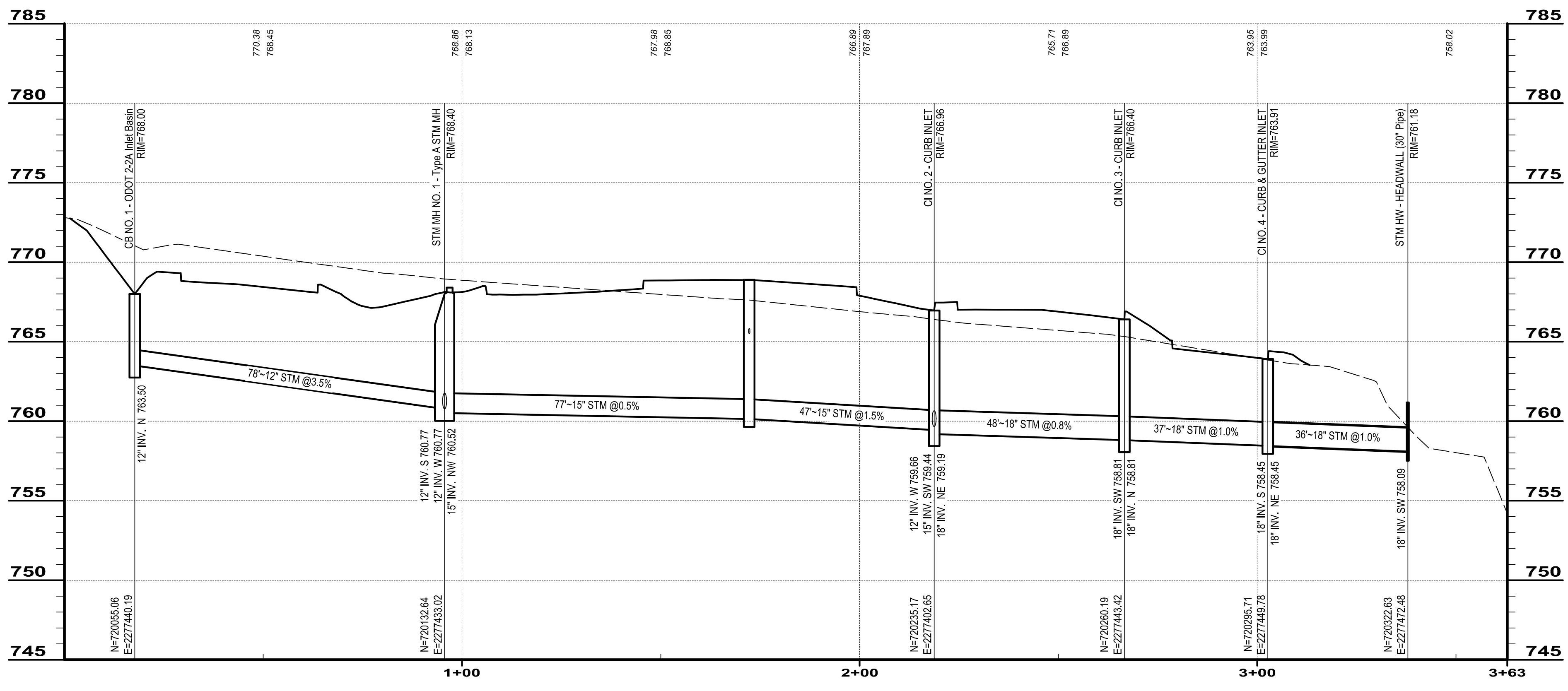
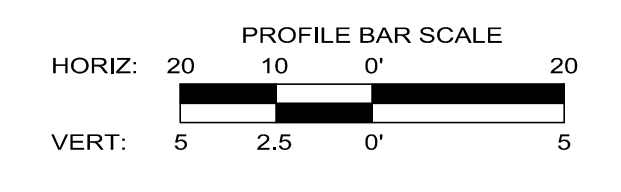
PROJECT NO.	18050002
DISCIPLINE	CIVIL
SHEET NAME	C_06
SHEET	12
OF	55



CATCH BASIN NO. 2 TO CURB INLET NO. 2

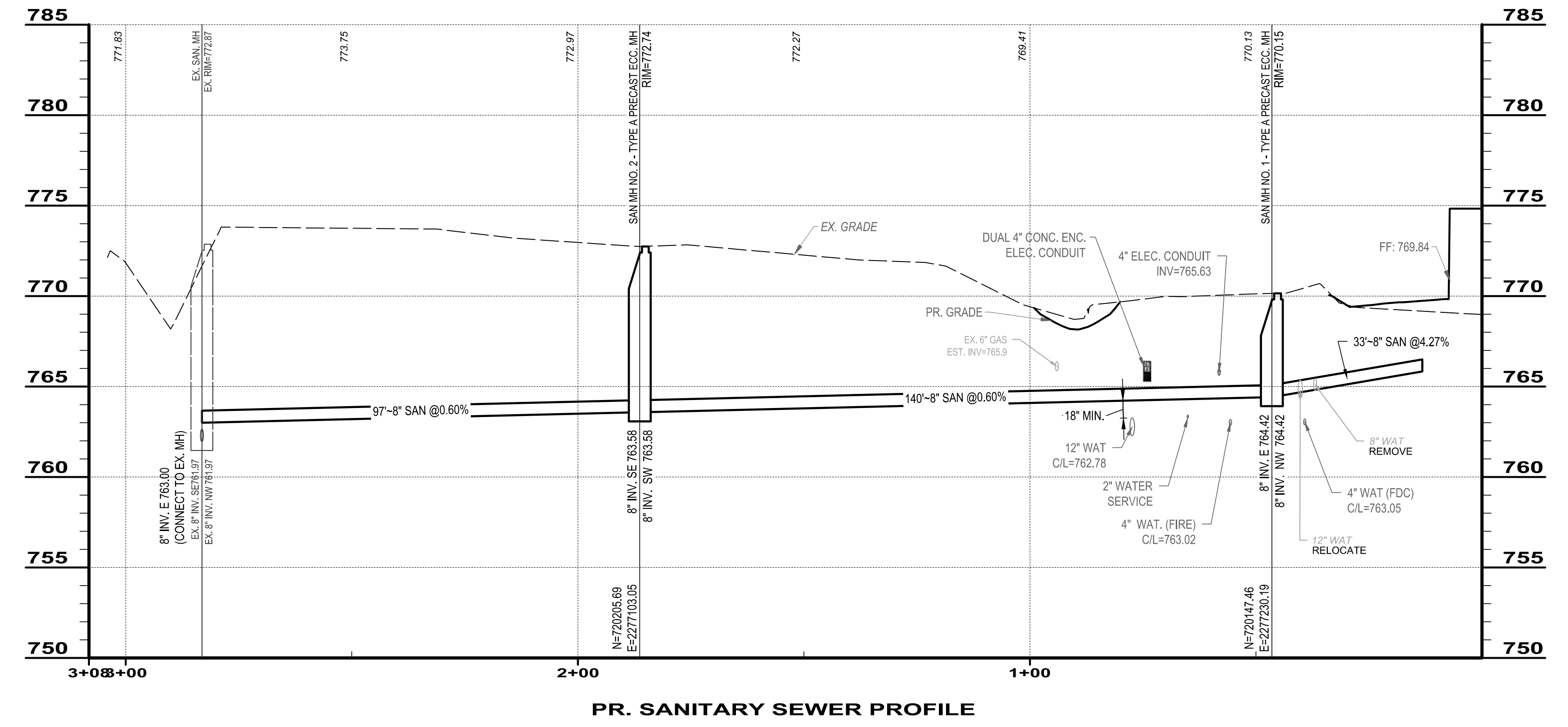
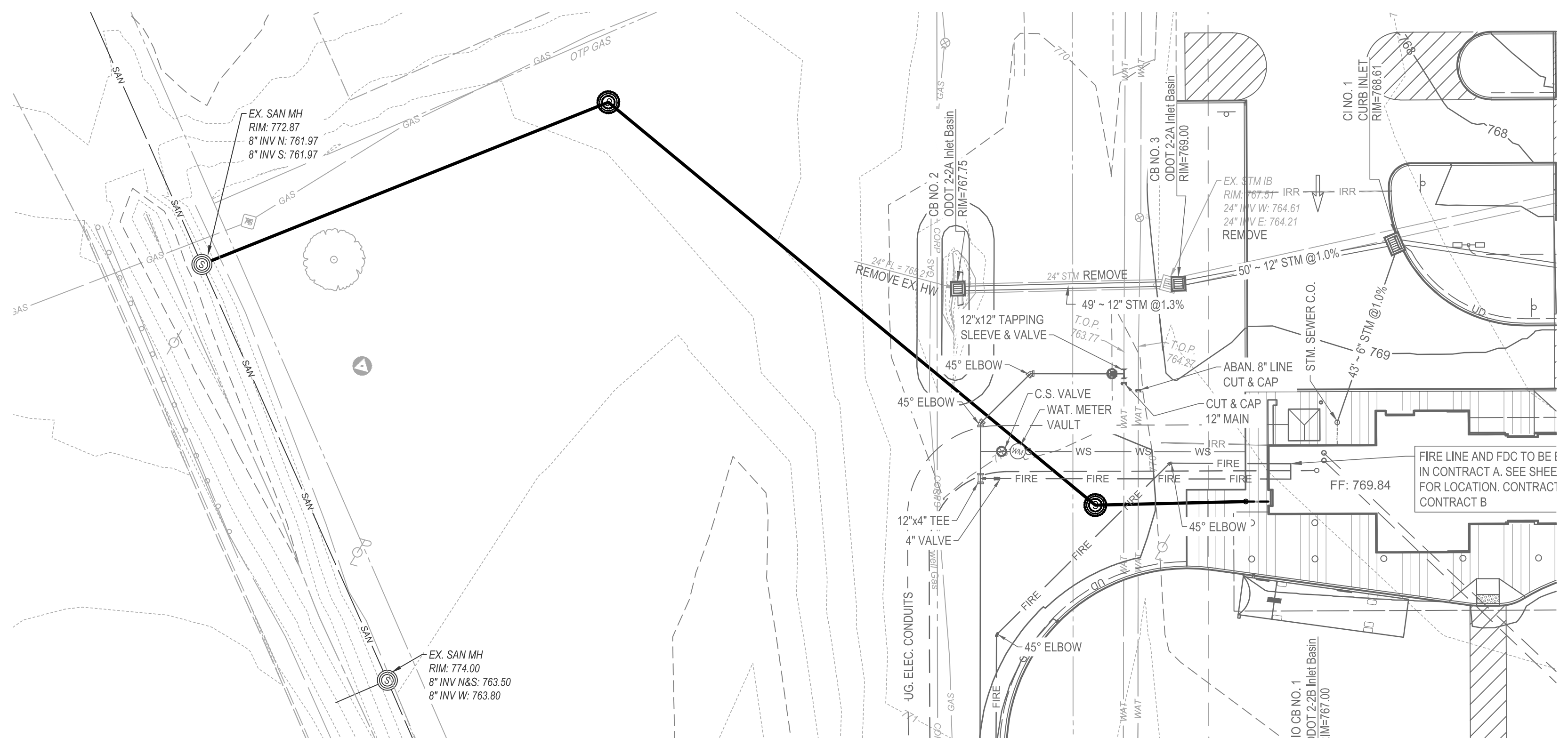
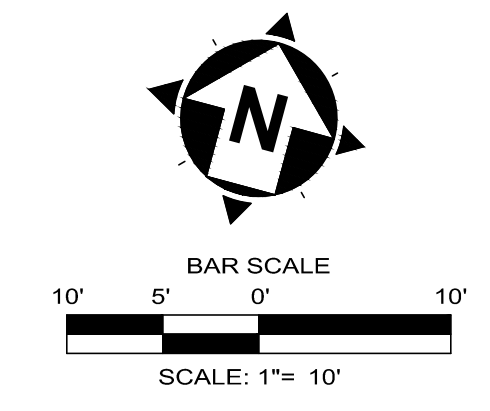


BIO-BASIN CB NO. 1 TO STORM MANHOLE NO. 1



CATCH BASIN NO. 1 TO STORM HEADWALL

STORMWATER STRUCTURE TABLE					
STRUCTURE NAME:	RIM ELEVATION	PIPES IN	PIPES OUT	NORTHING	EASTING
BIO CB NO. 1	767.00	4" INV S = 762.58	12" INV E = 761.47	720094.45	2277299.30
BIO CB NO. 2	767.00	4" INV S = 762.58 12" INV W = 760.88	12" INV E = 760.88	720127.28	2277411.44
CB NO. 1	768.00		12" INV N = 763.50	720055.06	2277440.19
CB NO. 2	767.75		12" INV E = 765.21	720185.86	2277188.41
CB NO. 3	769.00	12" INV W = 764.58	12" INV NE = 763.86	720199.54	2277235.27
CI NO. 1	768.61	12" INV SW = 763.37 6" INV S = 766.37	12" INV E = 763.37	720221.11	2277280.05
CI NO. 2	766.96	12" INV W = 759.66 15" INV SW = 759.44	18" INV NE = 759.19	720235.17	2277402.65
CI NO. 3	766.40	18" INV SW = 758.81	18" INV N = 758.81	720260.19	2277443.42
CI NO. 4	763.91	18" INV S = 758.45	18" INV NE = 758.45	720295.71	2277449.78
NYLO CB NO. 1	768.89	15" INV SE = 760.14 4" INV W = 765.50	15" INV NE = 760.14	720192.22	2277384.84
STM HW	761.18	18" INV SW = 758.09		720322.63	2277472.48
STM MH NO. 1	768.40	12" INV S = 760.77 12" INV W = 760.77	15" INV NW = 760.52	720132.64	2277433.02



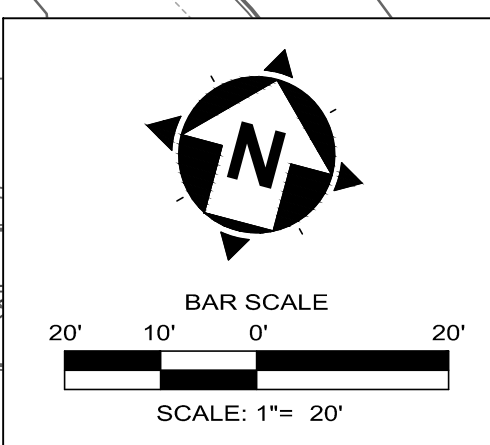
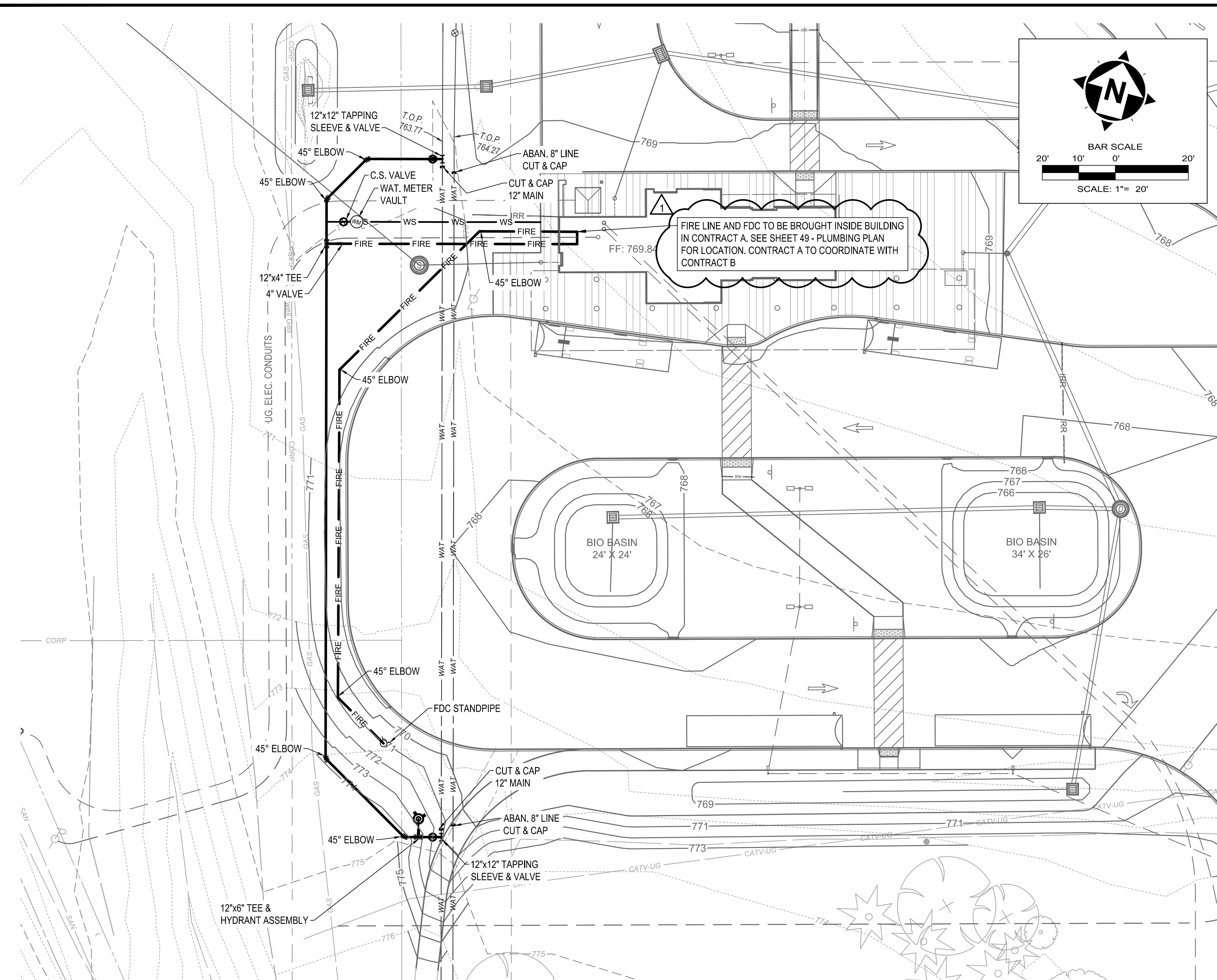
SANITARY STRUCTURE TABLE					
STRUCTURE NAME:	RIM ELEVATION	PIPES IN	PIPES OUT	NORTHING	EASTING
SAN MH NO. 1	770.15	8" INV E = 764.42	8" INV NW = 764.42	720147.46	2277230.19
SAN MH NO. 2	772.74	8" INV SE = 763.58	8" INV SW = 763.58	720205.69	2277103.05

ISSUED FOR:	CD	NO	REVISION	DATE
ISSUE DATE:	8/5/2019			
SCALE:	AS SHOWN			
DESIGNED BY:	LCH / GMS			
DRAWN BY:	GMS			
CHECKED BY:	LCH			

**LAKELAND TRANSFER CENTER**  
**LAKELAND COMMUNITY COLLEGE**  
 7601 CLOCKTOWER DR., KIRTLAND, OH 44094

**SANITARY SEWER**  
**PLAN & PROFILE**

PROJECT NO.	<b>18050002</b>
DISCIPLINE	<b>CIVIL</b>
SHEET NAME	<b>C_07</b>
SHEET	OF
<b>13</b>	<b>55</b>

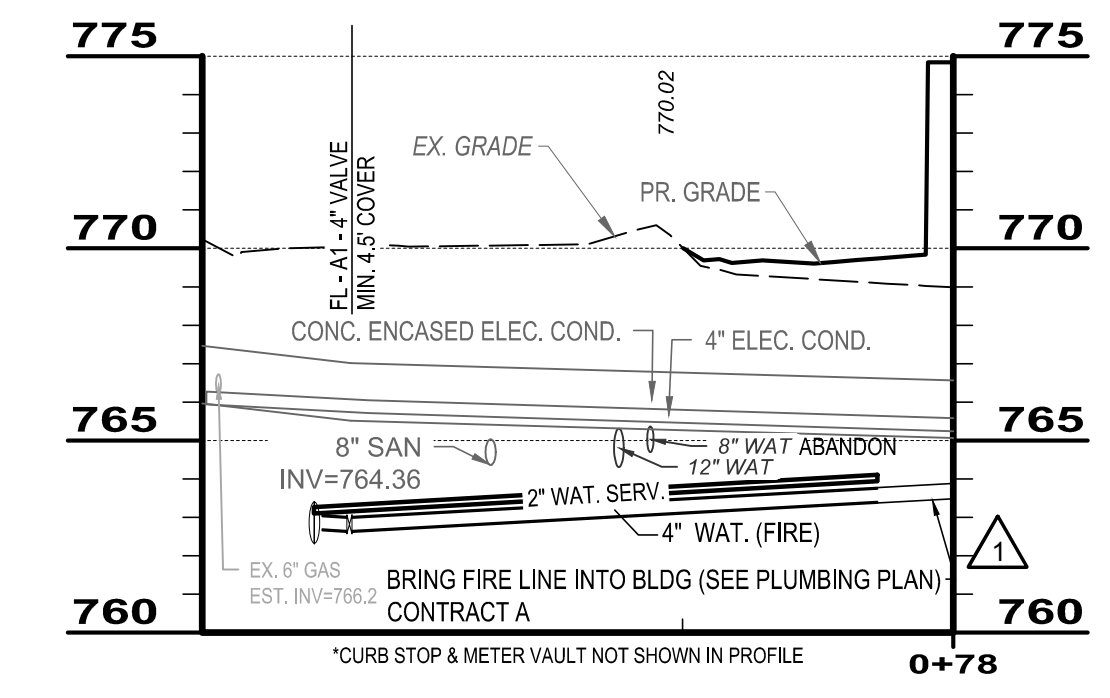


WATERLINE FITTING TABLE					
NO	DESCRIPTION	NORTHING	EASTING	NORTHING (AS-BUILT)	EASTING (AS-BUILT)
F2	12" X 6" TEE	719996.00	2277270.53		
F3	12" 45° BEND	719994.99	2277266.73		
F4	12" 45° BEND	720010.10	2277240.46		
F5	12" X 4" TEE	720146.56	2277204.12		
F6	12" 45° BEND	720158.38	2277200.97		
F7	12" 45° BEND	720171.85	2277208.78		
FDC - F1	4" 45° BEND	720160.68	2277243.69		
FDC - F2	4" 45° BEND	720114.11	2277216.50		
FDC - F3	4" 45° BEND	720027.26	2277239.32		

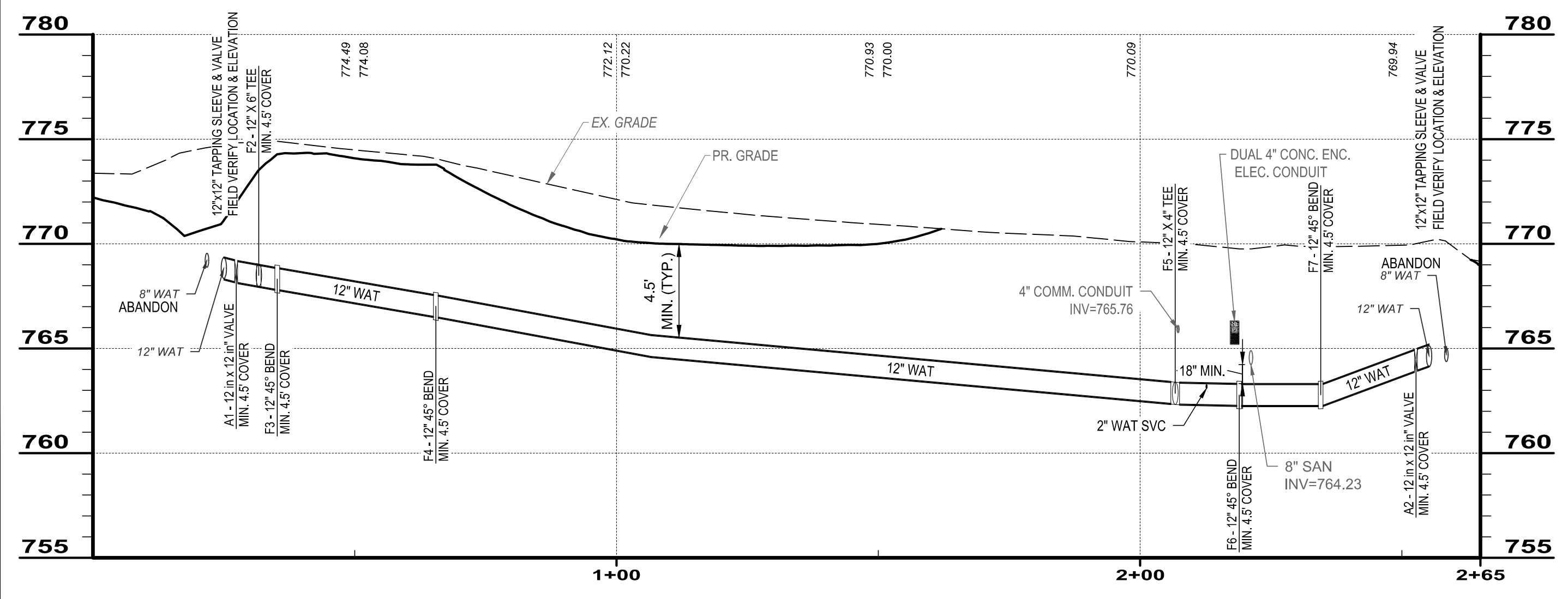
\*12"x12" TAPPING SLEEVES AND VALVES AS SHOWN ON PLAN

WATERLINE APPURTENANCE TABLE					
NO	DESCRIPTION	NORTHING	EASTING	NORTHING (AS-BUILT)	EASTING (AS-BUILT)
A1	12" Valve	719997.00	2277274.30		
A2	12" Valve	720176.53	2277226.37		
FL - A1	4" Valve	720147.50	2277207.65		
HYD - A1	6" Valve	719997.42	2277270.16		

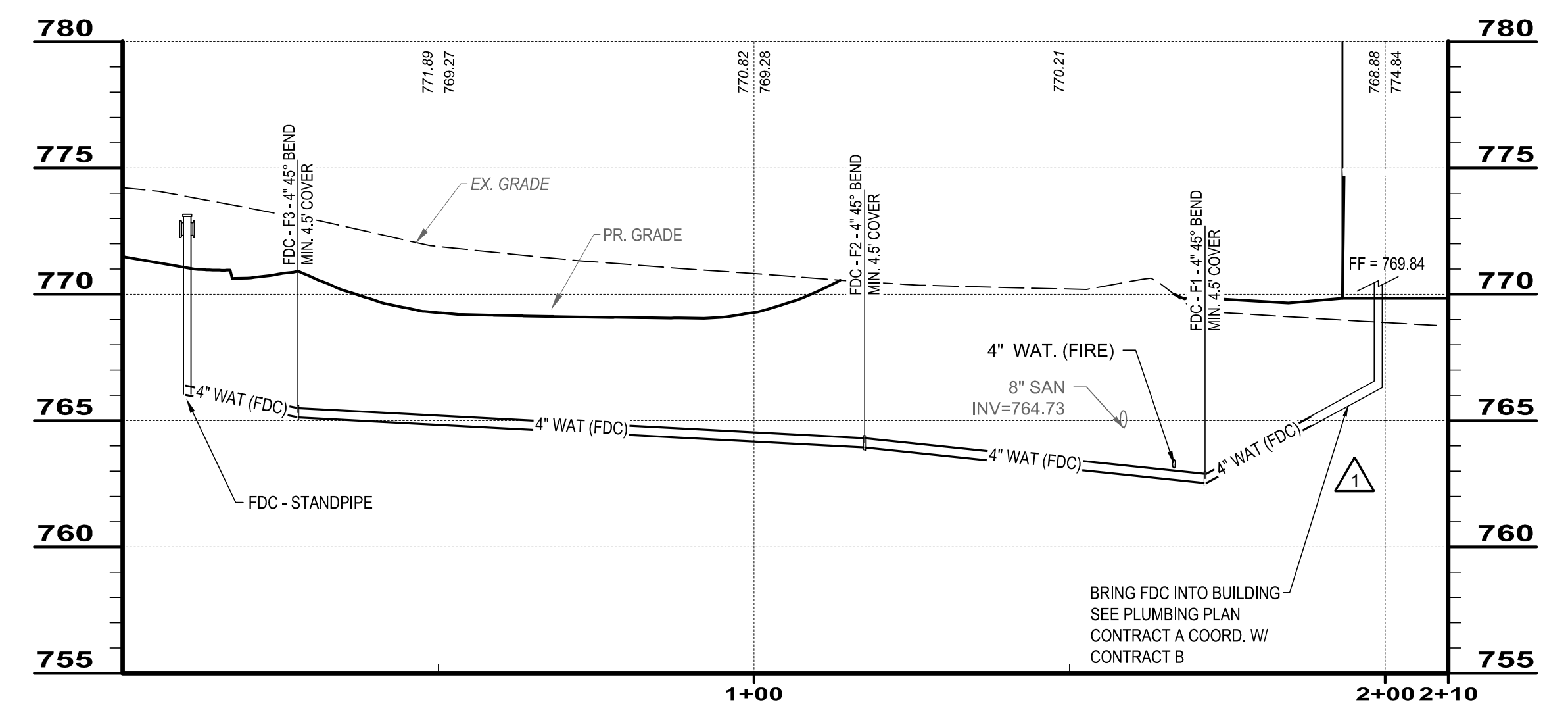
\*SERVICE CONNECTION CURB STOP & METER VAULT AS SHOWN ON PLAN



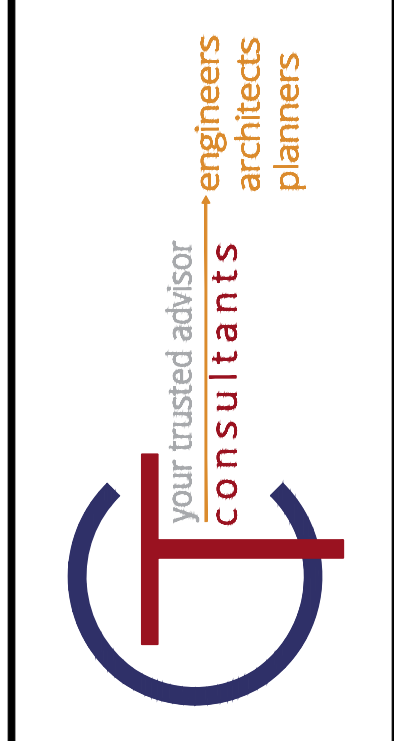
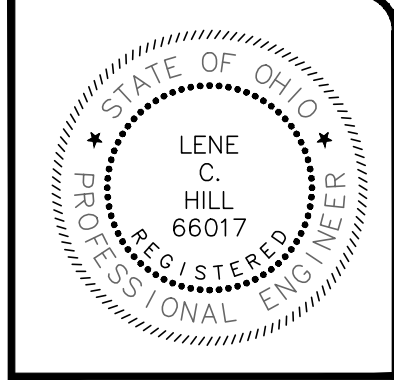
4" FIRE & 1.5" SERVICE CONNECTION



12" WATERMAIN RELOCATION



4" FIRE DEPT. CONNECTION

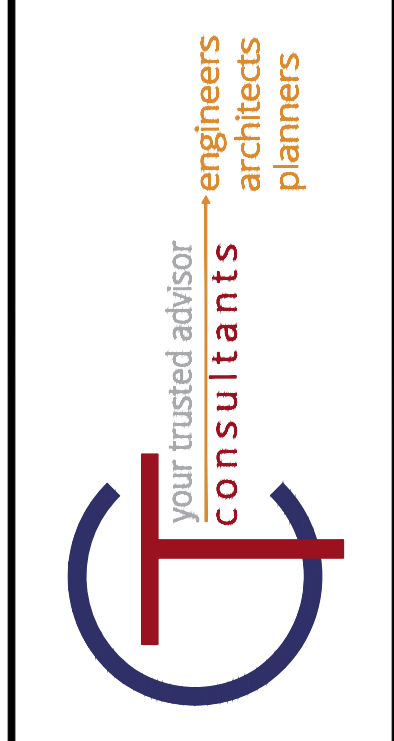
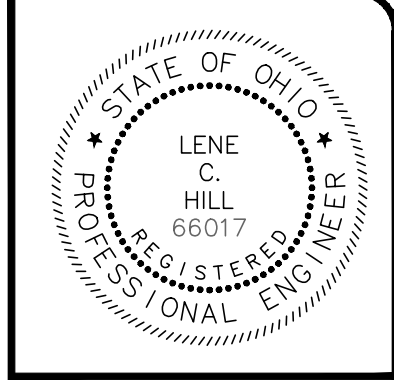
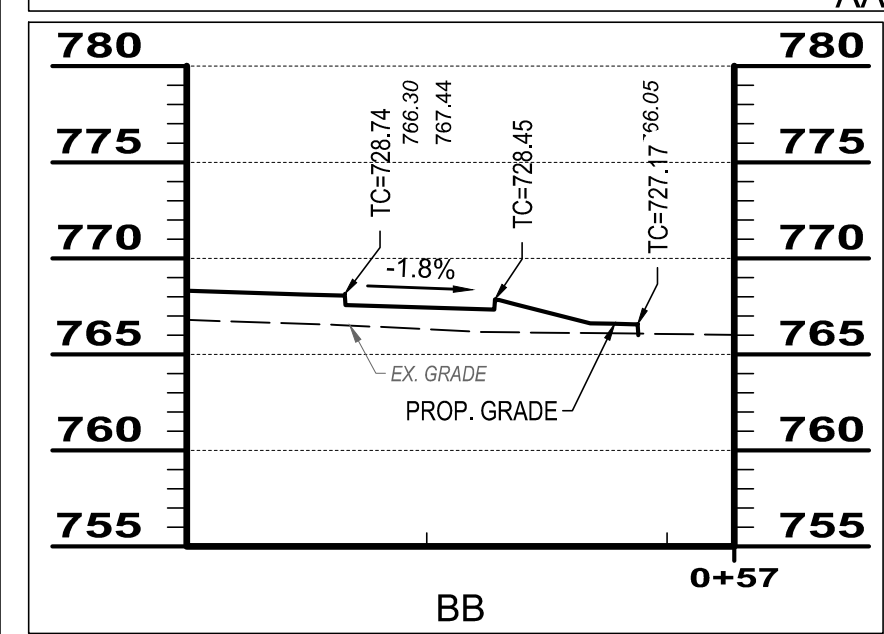
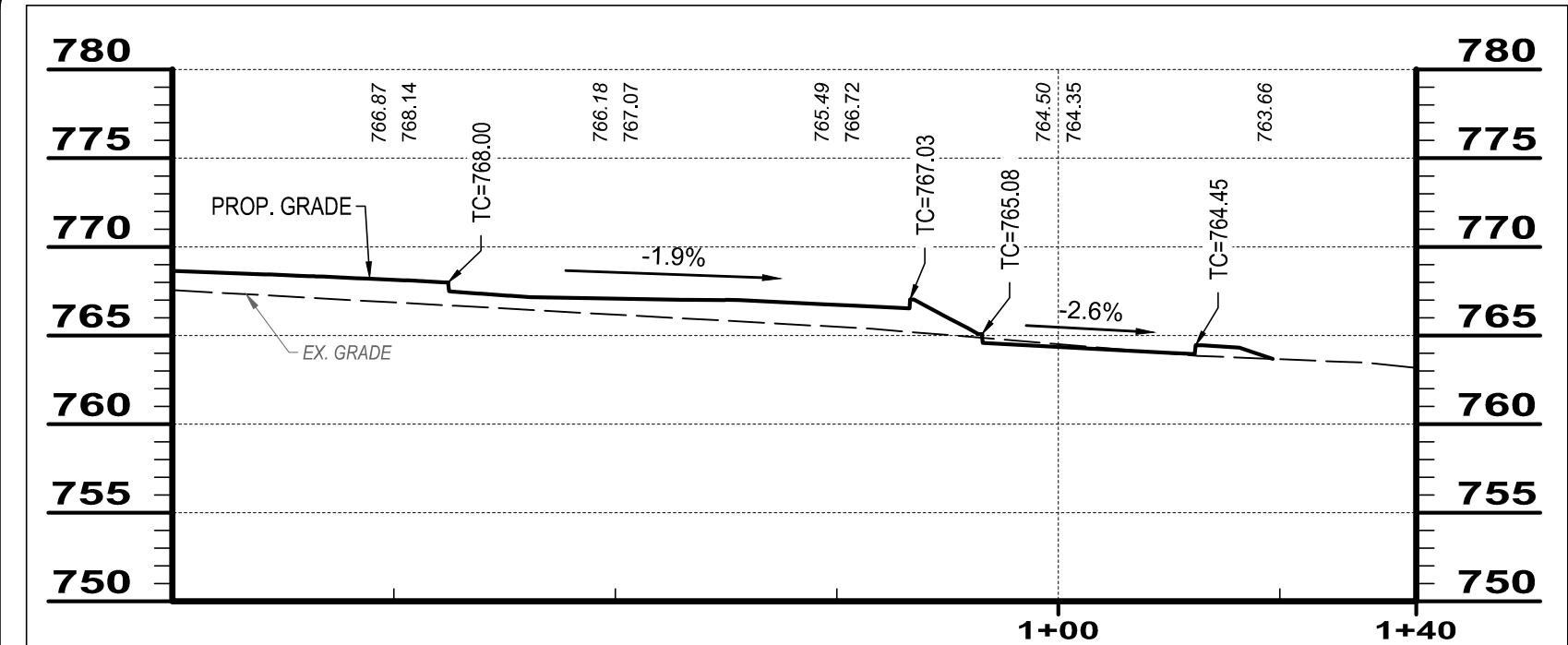
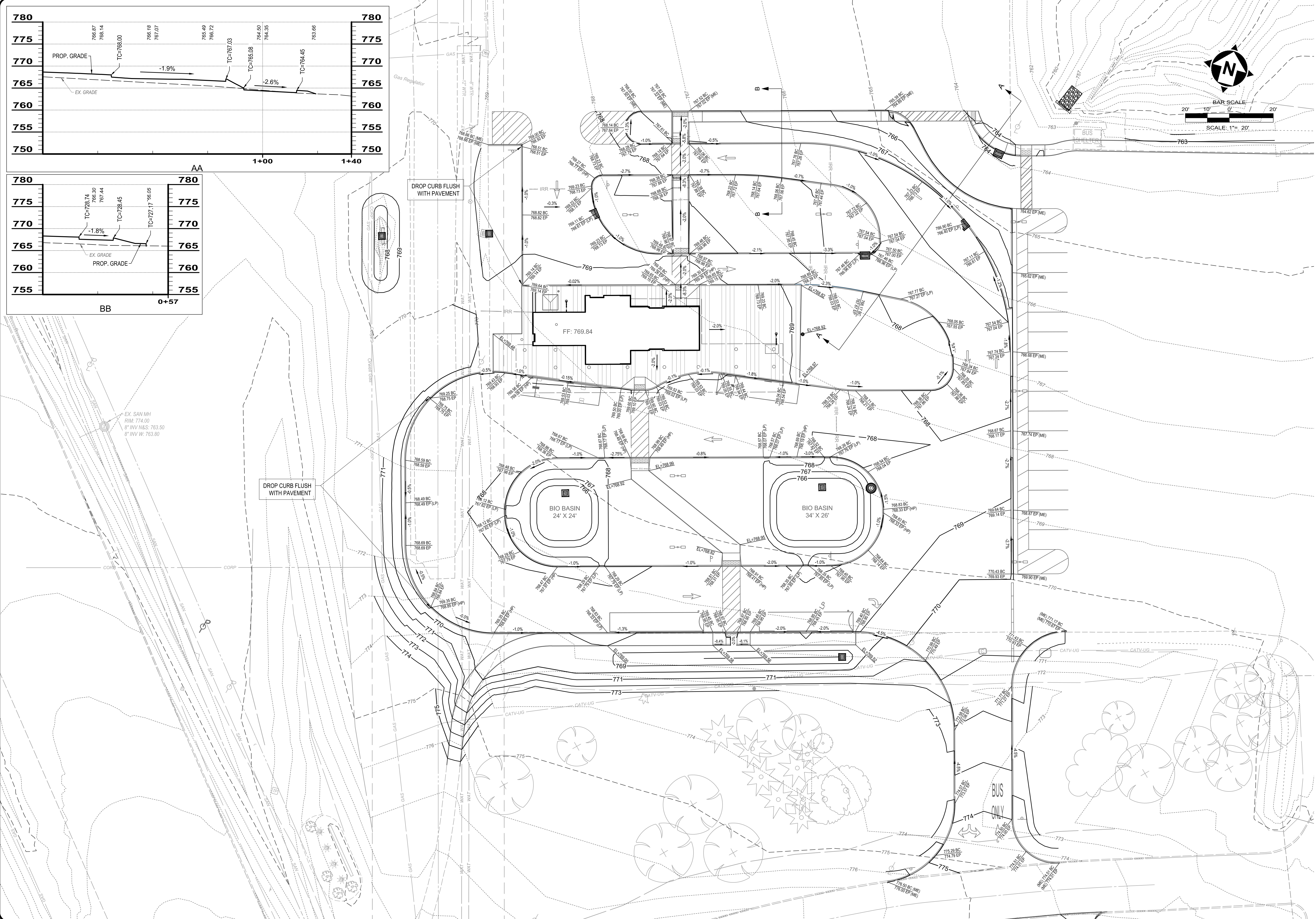


ISSUED FOR:	CD	NO	REVISION	DATE
8/5/2019	8/5/2019	8/05/2019		
AS SHOWN				
LCH / GMS				
GMS				
LCH				

**LAKELAND TRANSFER CENTER**  
**LAKELAND COMMUNITY COLLEGE**  
 7601 CLOCKTOWER DR., KIRTLAND, OH 44094

**WATERMAIN RELOCATION & SERVICE**

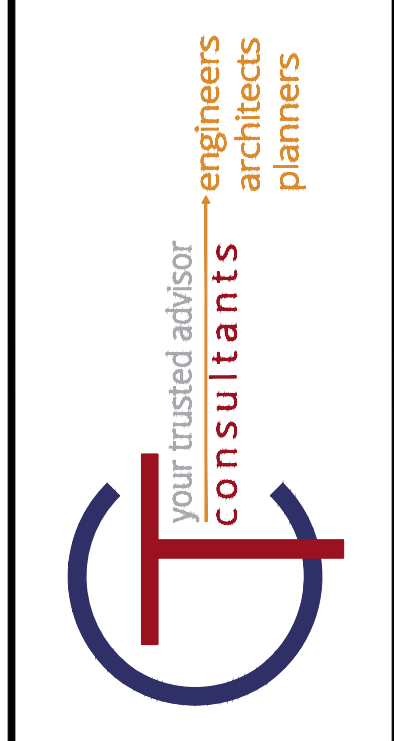
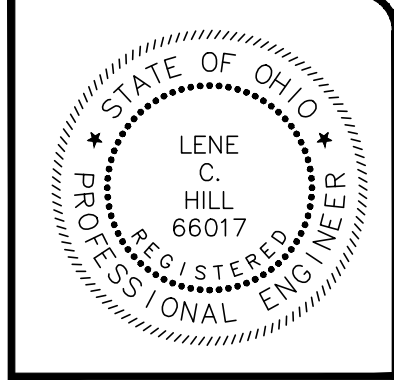
PROJECT NO.	18050002
DISCIPLINE	CIVIL
SHEET NAME	C_08
SHEET	14
OF	55



ISSUED FOR:	CD	NO	REVISION	DATE
8/5/2019				
AS SHOWN				
LCH / GMS				
GMS				
LCH				

**LAKELAND TRANSFER CENTER**  
**LAKELAND COMMUNITY COLLEGE**  
 7601 CLOCKTOWER DR., KIRTLAND, OH 44094

PROJECT NO.	18050002
DISCIPLINE	CIVIL
SHEET NAME	C_09
SHEET	OF
15	55



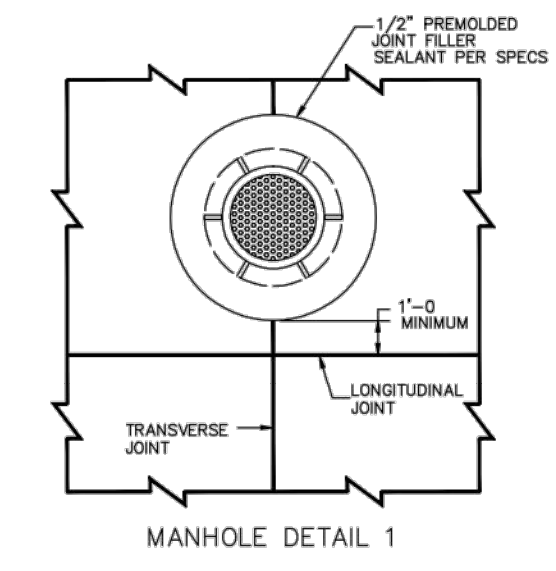
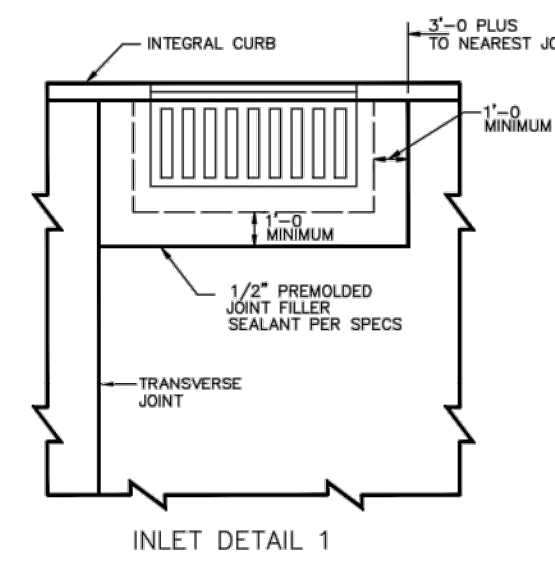
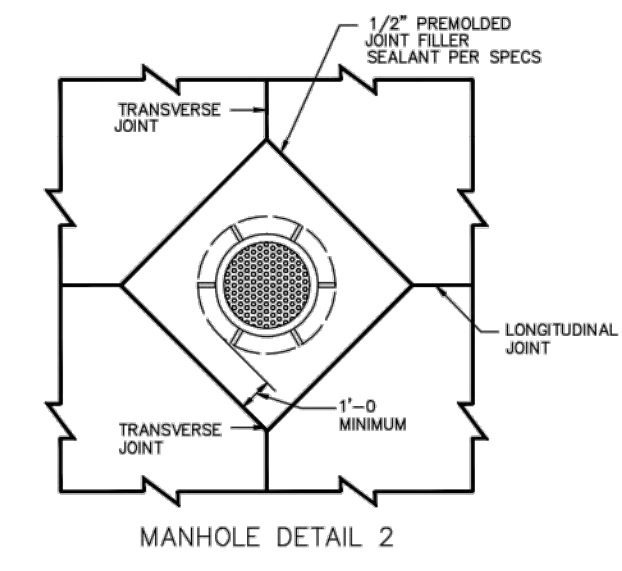
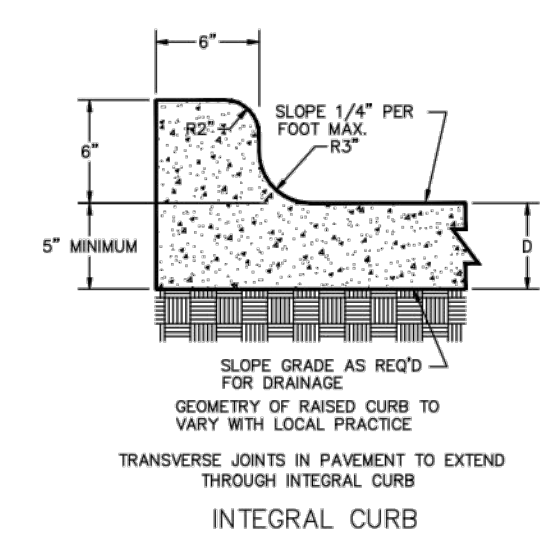
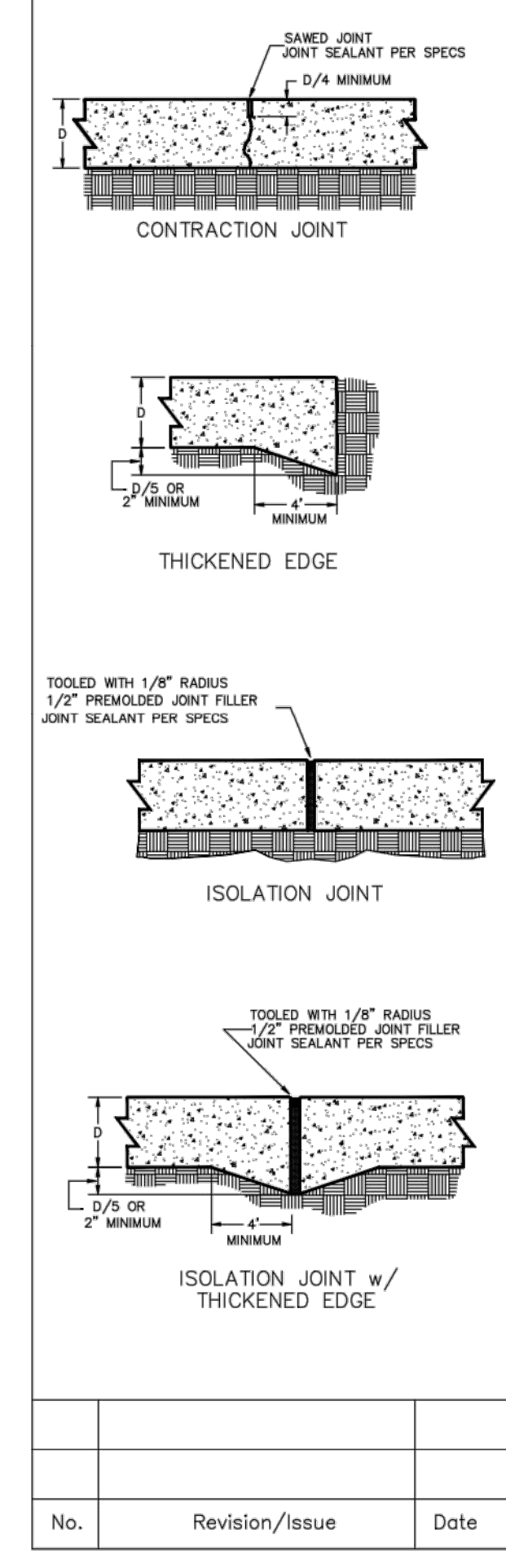
ISSUED FOR:	CD	NO	REVISION	DATE
ISSUE DATE:	8/5/2019			
SCALE:	AS SHOWN			
DESIGNED BY:	LCH / GMS			
DRAWN BY:	GMS			
CHECKED BY:	LCH			

**LAKELAND TRANSFER CENTER**  
**LAKELAND COMMUNITY COLLEGE**  
 7601 CLOCKTOWER DR., KIRTLAND, OH 44094

**RECOMMENDED CONCRETE JOINT PLAN**

PROJECT NO.	18050002
DISCIPLINE	CIVIL
SHEET NAME	C_11
SHEET	OF
16	55

**General Notes**



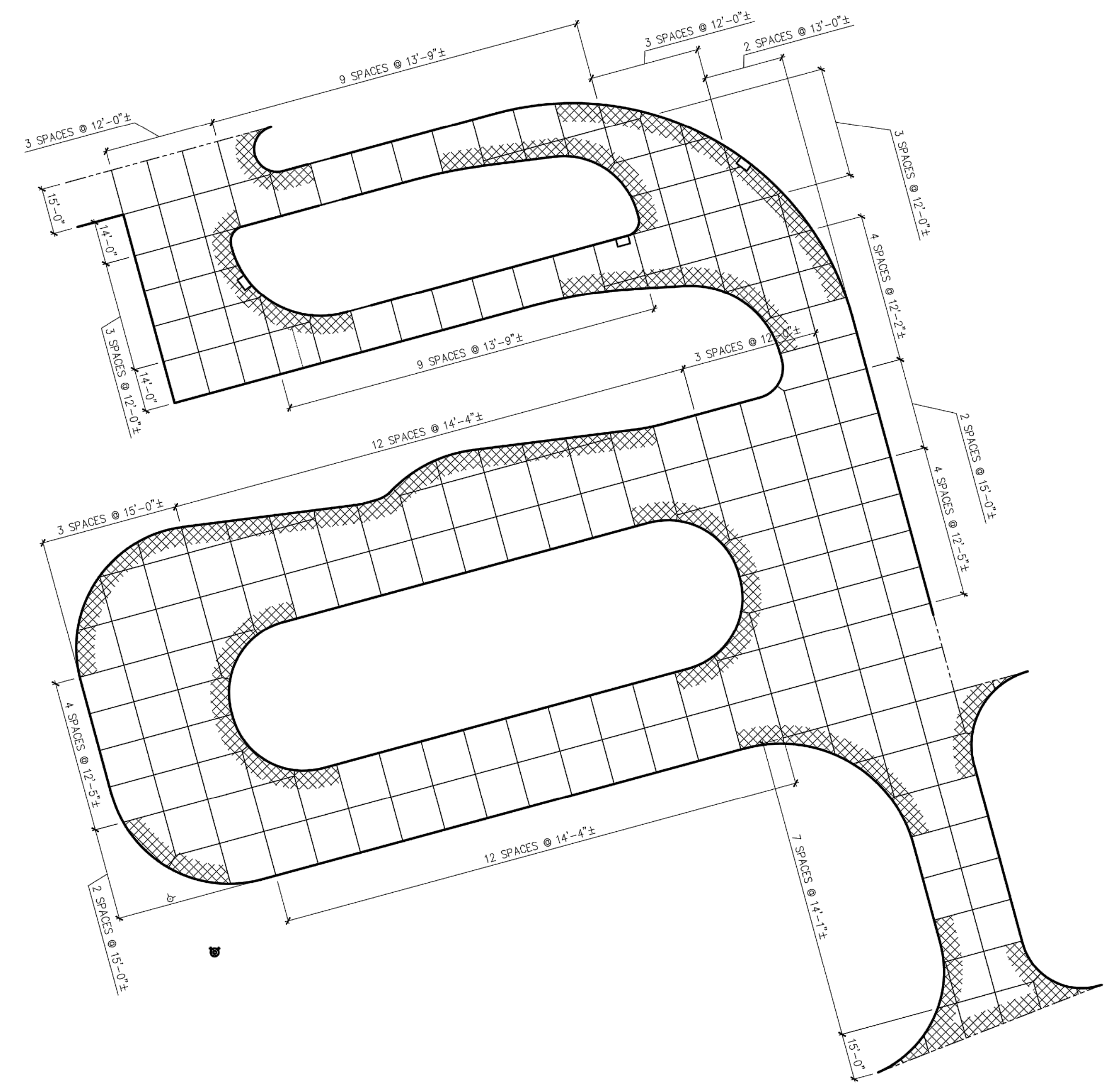
**SYMBOL AND LINE KEY**

- = CONTRACTION JOINT
- - - - - = THICKENED EDGE
- = ISOLATION JOINT
- - - - - = ISOLATION JOINT W/ THICKENED EDGE
- = EDGE OF PAVEMENT
- ⊗ = WIRE MESH OR MACRO FIBERS



Project Name and Address  
 LAKELAND TRANSFER CENTER  
 KIRTLAND, LAK Co.  
 MAY 30, 2019

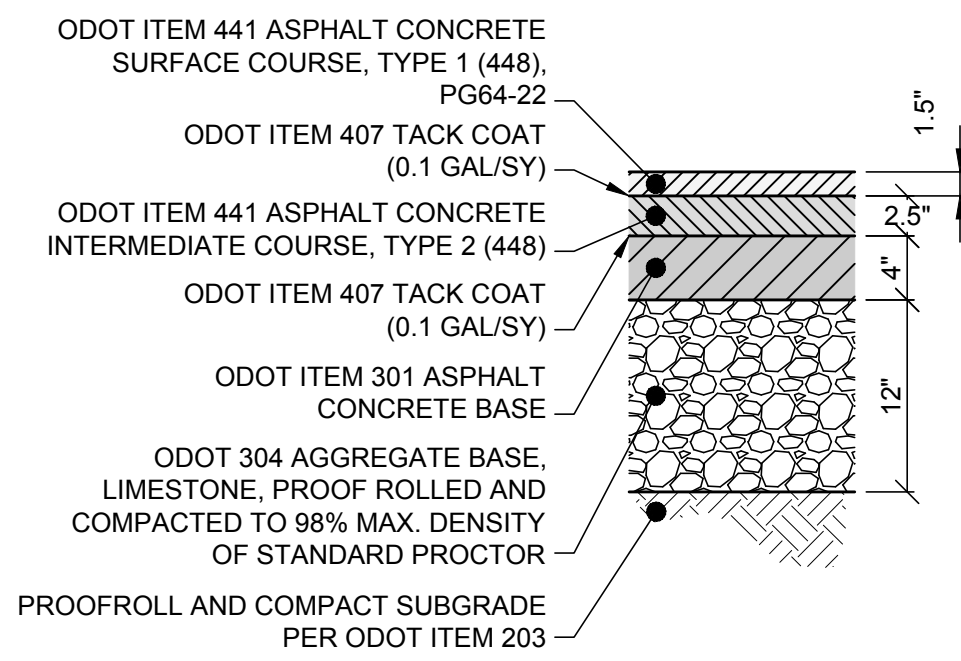
Project	Sheet
Date	
Scale	



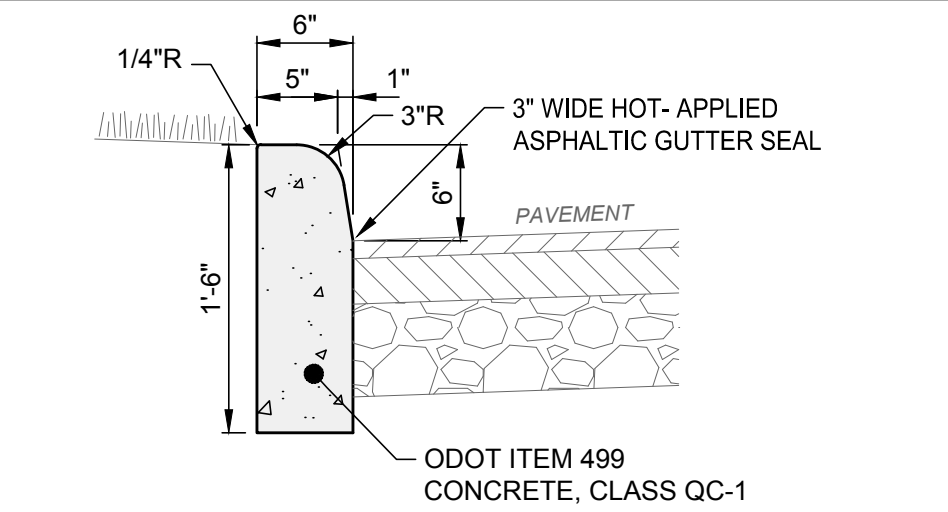
**PARKING LOT JOINTING PLAN**  
 SCALE: NO SCALE

\*PRELIMINARY SUGGESTED LAYOUT PROVIDED BY OHIO CONCRETE  
 BASED ON 9" THICKNESS ONLY



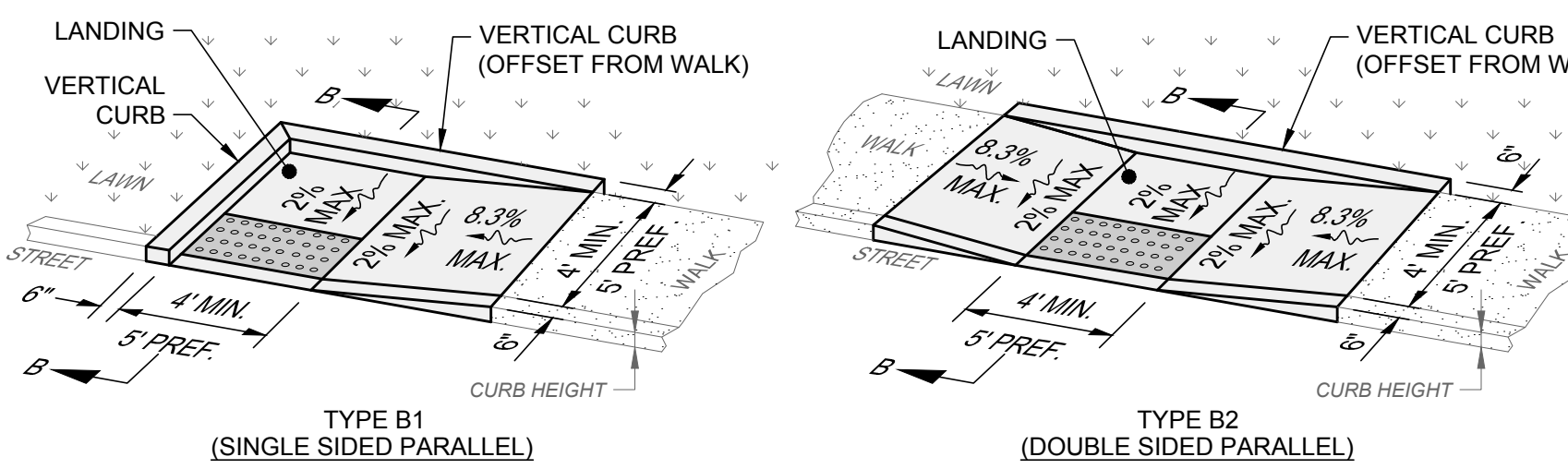
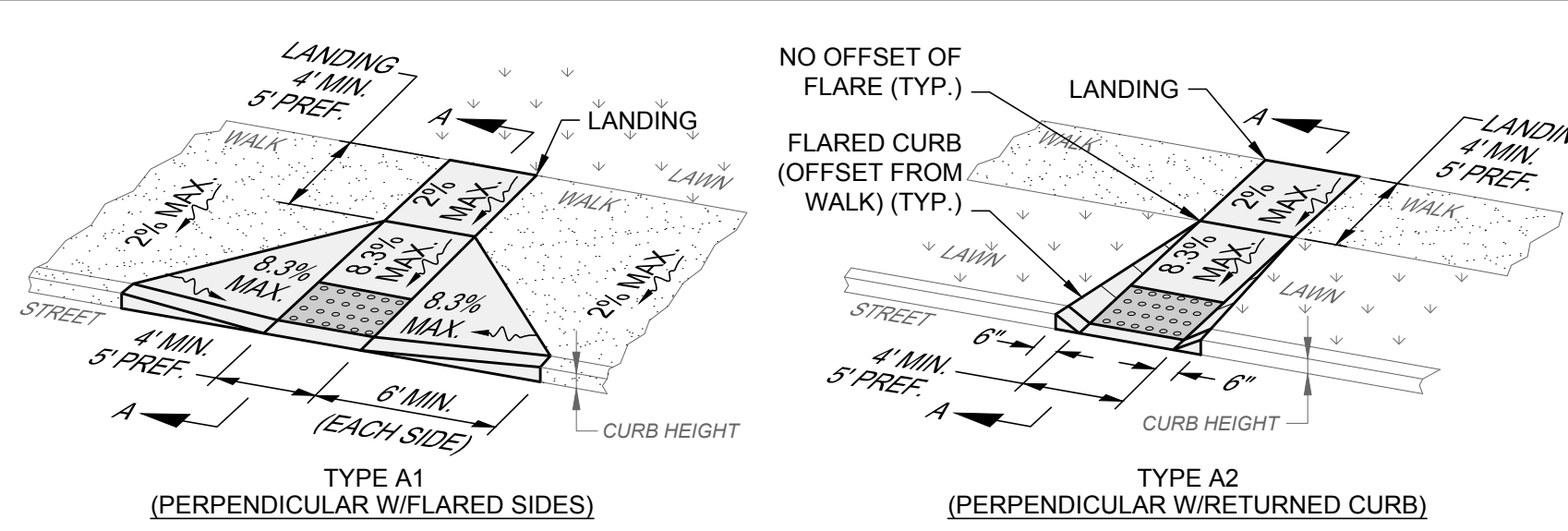


**HEAVY DUTY ASPHALT PAVEMENT DETAIL**  
SCALE: NONE

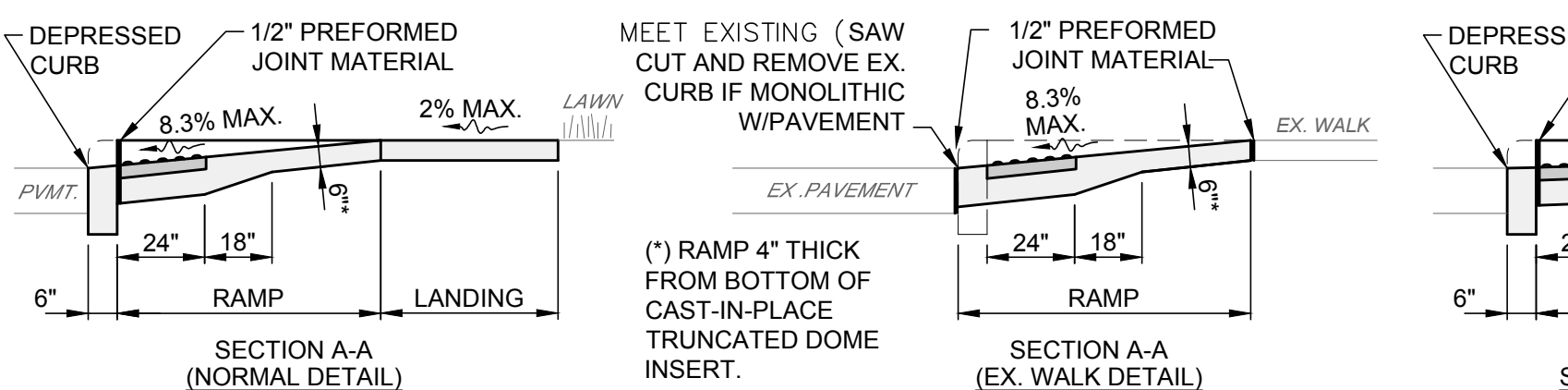


- NOTES:
- INSTALL 1/2" PREFORMED JOINT MATERIAL AND USE DOWELS INTO COLD JOINTS TOP AND BOTTOM WHERE NEW CURB MEETS EXISTING CURB.
  - PROVIDE CONTRACTION JOINTS AT 15' O.C.
  - APPLY LIQUID-MEMBRANE CURING COMPOUND.

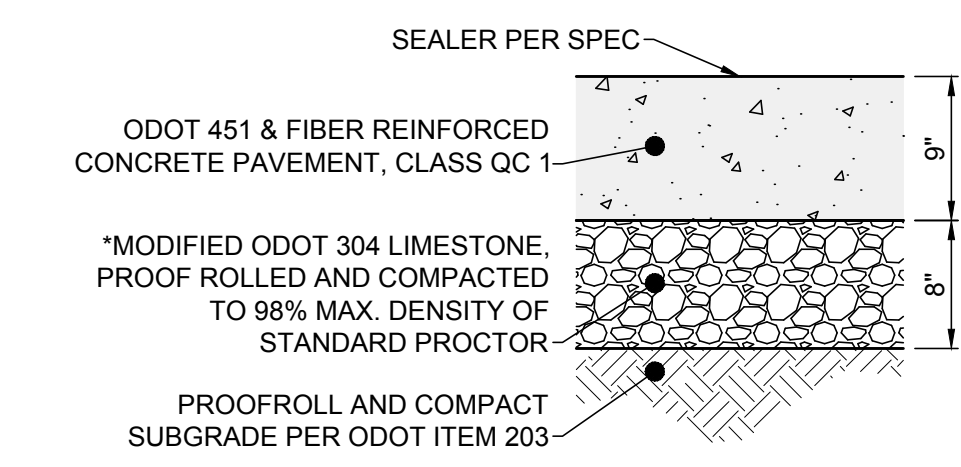
**(ODOT TYPE 6) 6" VERTICAL CURB DETAIL**  
SCALE: NONE



- NOTES:
- THIS DETAIL IS FOR REFERENCE ONLY. SEE THE LAYOUT PLAN FOR RAMP TYPE, CONFIGURATION, DIMENSIONS AND DEPRESSED CURB LOCATIONS; THE GRADING PLAN FOR SPECIFIC ELEVATIONS AND SLOPES; AND THE DETAIL SHEETS FOR APPLICABLE WALK AND CURB DETAILS.
  - LINES SHOWN IN THIS DETAIL INDICATE RAMP EDGES AND CHANGES IN SLOPE, AND NOT NECESSARILY JOINT LINES.
  - TEXTURE CONCRETE SURFACE BY COARSE BROOMING TRANSVERSE TO RAMP SLOPE.
  - ALL RAMPS SHALL BE POURED INTEGRAL WITH NEW CURBS WITH CURB EDGE FLUSH TO PAVEMENT.
  - TRUNCATED DOMES SHALL BE ALIGNED WITH THE PRIMARY DIRECTION OF THE RAMP.
  - TRUNCATED DOMES SHALL BE ALONG THE FULL RAMP WIDTH.
  - TRUNCATED DOMES SHALL BE INSTALLED FLUSH WITH BACK OF CURB. IN SKEWED CONDITION, ONE CORNER OF THE STRIP MUST BE ADJACENT TO BACK OF CURB.
  - TRUNCATED DOME MATERIALS SHALL BE MITERED AND PLACED SEGMENTALLY FOR NON-STANDARD LAYOUTS.
  - ONLY CAST-IN-PLACE TRUNCATED DOMES ARE ALLOWED.
  - TRUNCATED DOME COLOR SHALL BE RED AND MUST CONTRAST WITH CONCRETE. BLACK OR GRAY ARE NOT ACCEPTABLE COLORS.

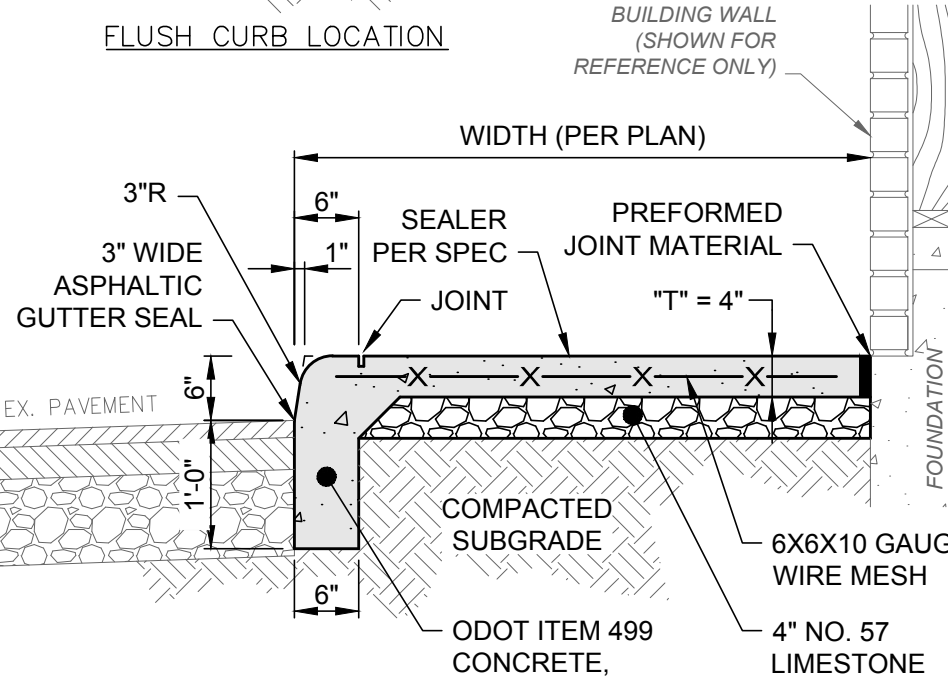
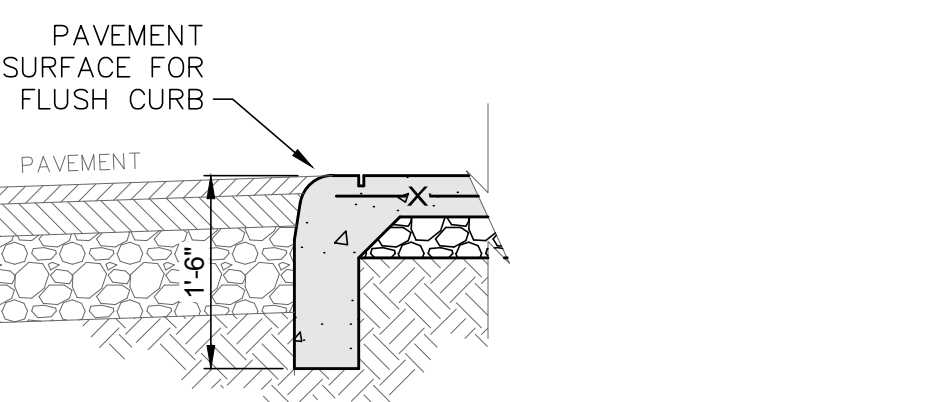


**CURB RAMP WITH DETECTABLE WARNING DETAILS**  
SCALE: NONE



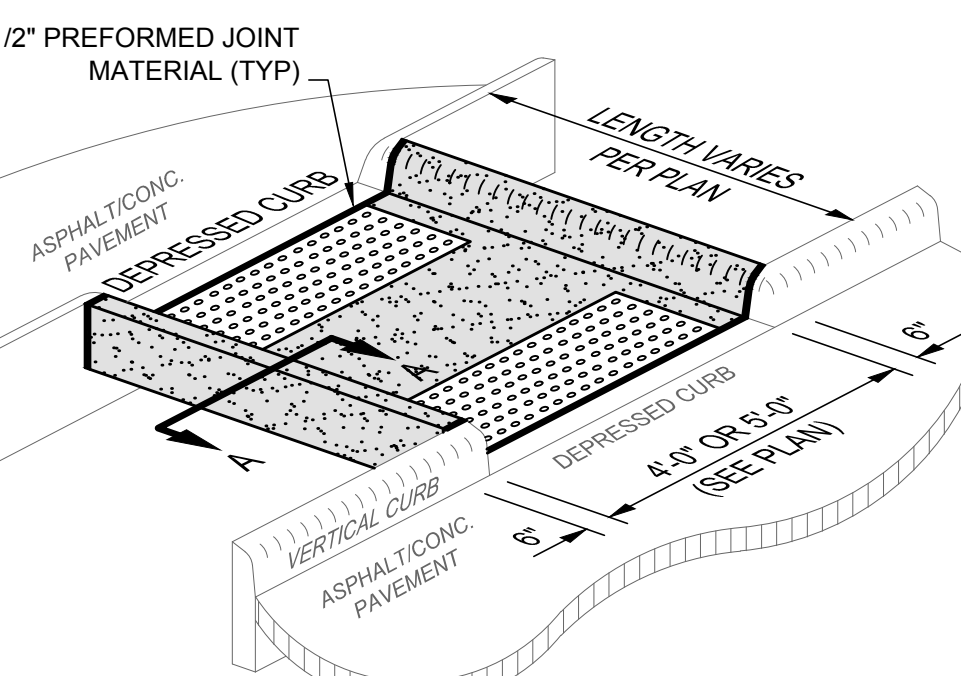
- NOTES:
- SEE LAYOUT PLAN FOR JOINT LOCATIONS. IF JOINTS ARE NOT SHOWN, THEN THE CONTRACTOR SHALL DETERMINE THE LOCATION OF ALL JOINTS. DIVIDE JOINTS INTO EQUALLY SPACED RECTANGULAR BLOCKS.
  - IF UNSUITABLE SOILS EXIST, UNDERCUT SUBGRADE, REMOVE AND REPLACE WITH "RESTRICTED ODOT ITEM 304 CRUSHED LIMESTONE, 12" MIN.
  - APPLY LIQUID-MEMBRANE CURING COMPOUND (225 S.F./GAL.)

**9" REINFORCED CONCRETE PAVEMENT DETAIL**  
SCALE: NONE



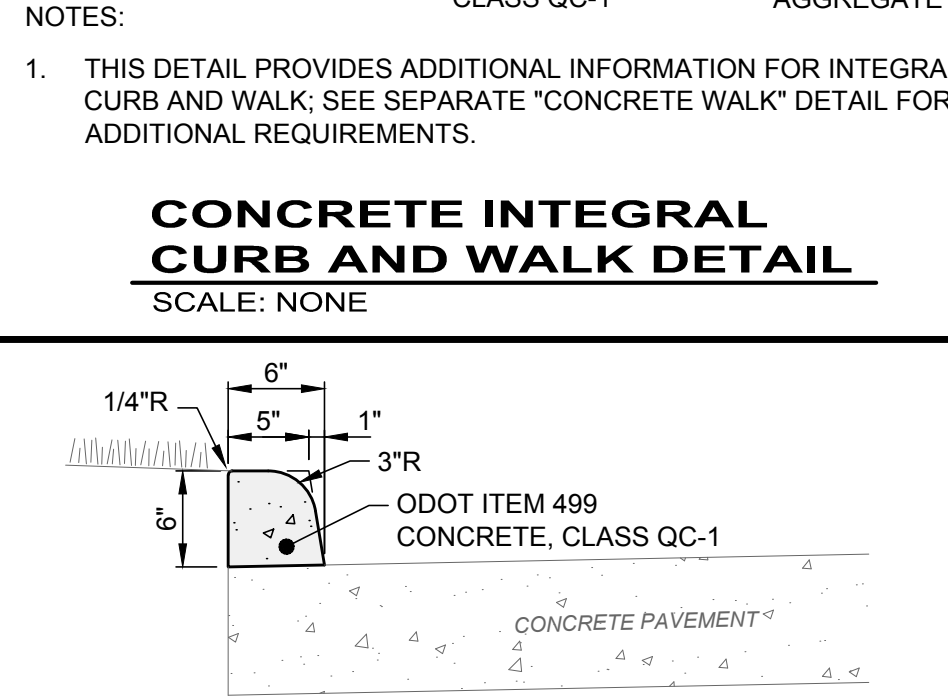
- NOTES:
- THIS DETAIL PROVIDES ADDITIONAL INFORMATION FOR INTEGRAL CURB AND WALK; SEE SEPARATE "CONCRETE WALK" DETAIL FOR ADDITIONAL REQUIREMENTS.

**CONCRETE INTEGRAL CURB AND WALK DETAIL**  
SCALE: NONE

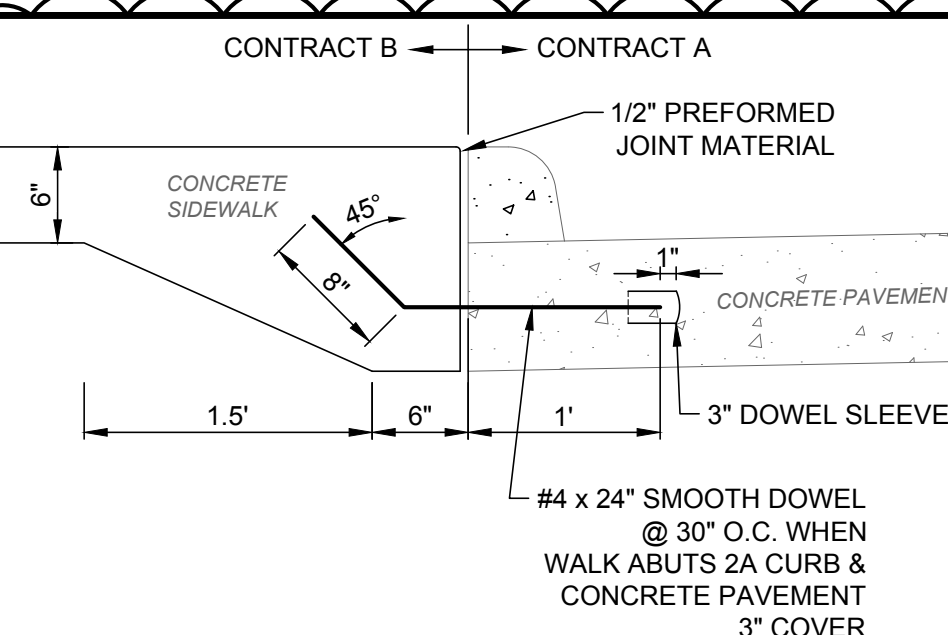


- NOTES:
- DEPRESSED CURB EDGE SHALL BE FLUSH WITH PAVEMENT AND SLOPED TOWARDS PAVEMENT.
  - INSTALL DETECTABLE WARNINGS ONLY IF SHOWN ON THE LAYOUT PLAN.
  - SEE CONCRETE SIDEWALK DETAIL FOR SPECIFICATIONS.

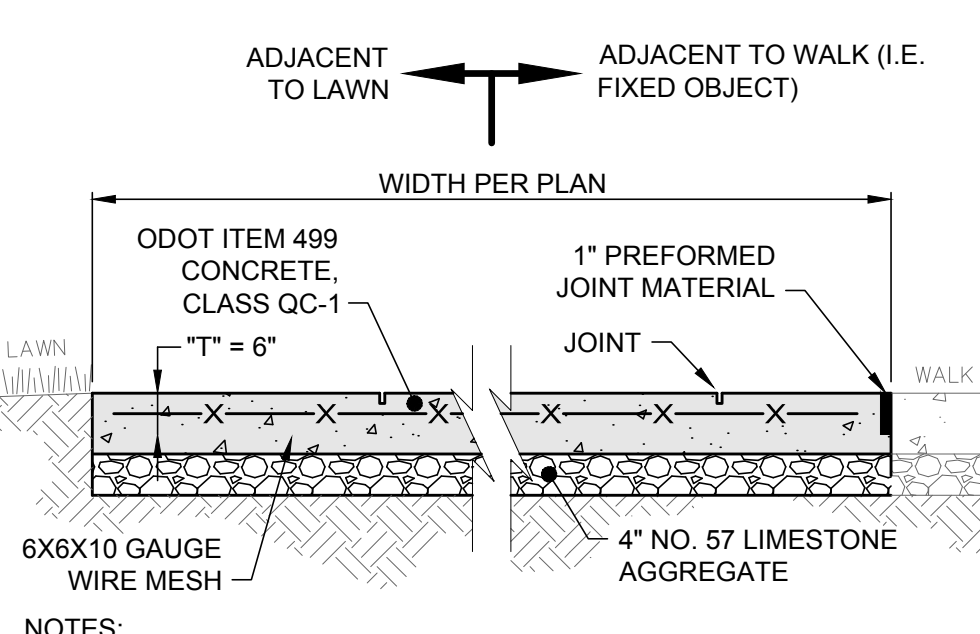
**SIDEWALK CUT-THROUGH DETAIL**  
SCALE: NONE



**(ODOT TYPE 2A) 6" INTEGRAL VERTICAL CURB DETAIL**  
SCALE: NONE

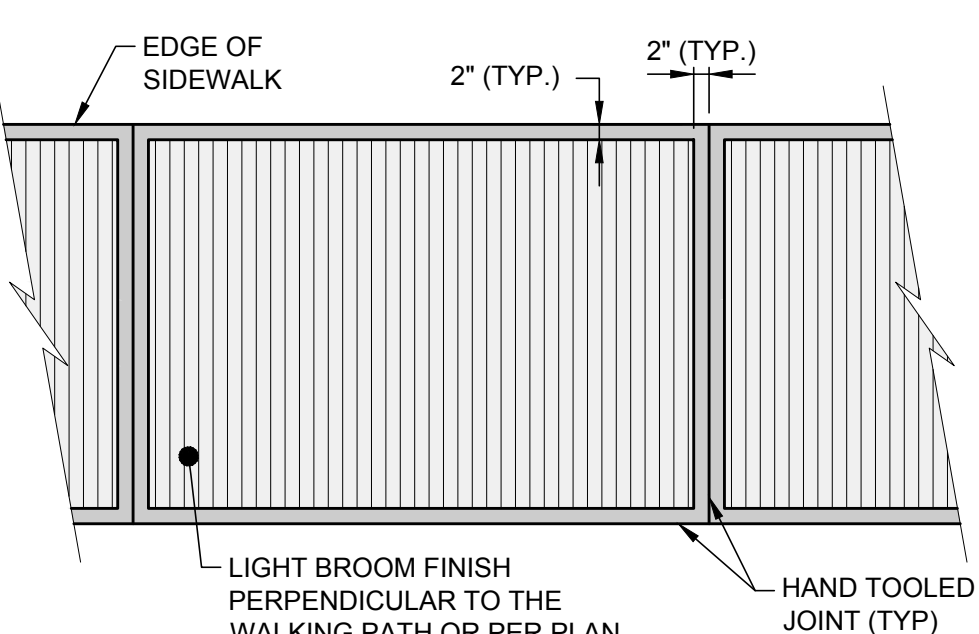


**CONCRETE SIDEWALK ADJACENT TO 2A CURB**  
SCALE: NONE



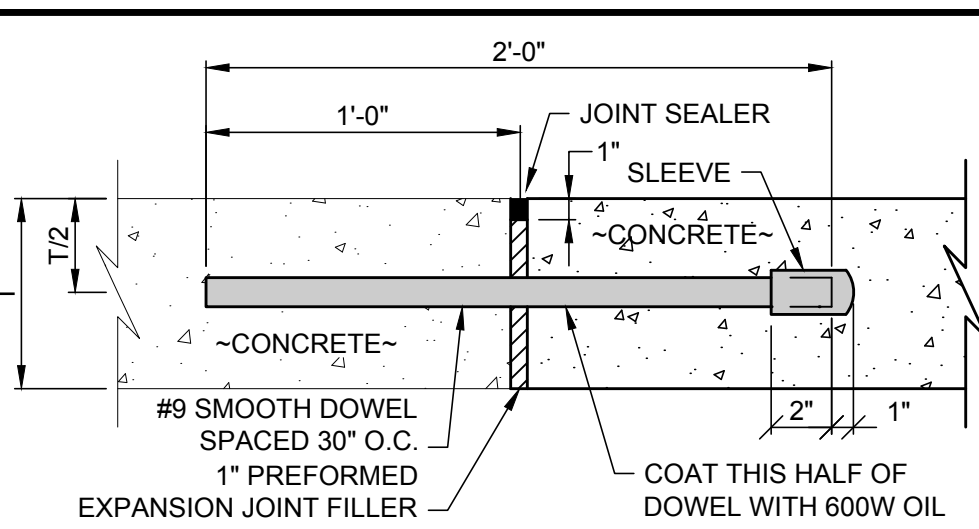
- NOTES:
- SEE LAYOUT PLAN FOR JOINT LOCATIONS. IF JOINTS ARE NOT PROVIDED, THEN THE CONTRACTOR SHALL DETERMINE THE LOCATION OF ALL JOINTS. DIVIDE JOINTS INTO EQUALLY SPACED RECTANGULAR BLOCKS.
  - SAW CUT OR HAND TOOL JOINT 1/8" WIDE BY 1/4 OF "T" DEEP.
  - ROUND ALL EDGES AND JOINTS WITH A 1/4" RADIUS.
  - INSTALL PREFORMED JOINT MATERIAL EVERY 30' OR BETWEEN SIDEWALK AND FIXED OBJECT (I.E. MANHOLE, WALK, BUILDING), WALK SHOWN FOR REFERENCE ONLY.
  - LIGHTLY BROOM THE FINISH PERPENDICULAR TO THE WALKING PATH OR PER PLAN. IF HAND TOOLED JOINTS AND EDGES ARE SPECIFIED, FINISH AFTER PANEL INTERIOR TEXTURE HAS BEEN APPLIED (I.E. WINDOW PANE EFFECT).
  - 4" NO. 57 LIMESTONE IS INCIDENTAL TO AND SHALL BE INCLUDED IN UNIT PRICE OF SIDEWALK.
  - APPLY LIQUID-MEMBRANE CURING COMPOUND.

**CONCRETE WALK DETAIL**  
SCALE: NONE

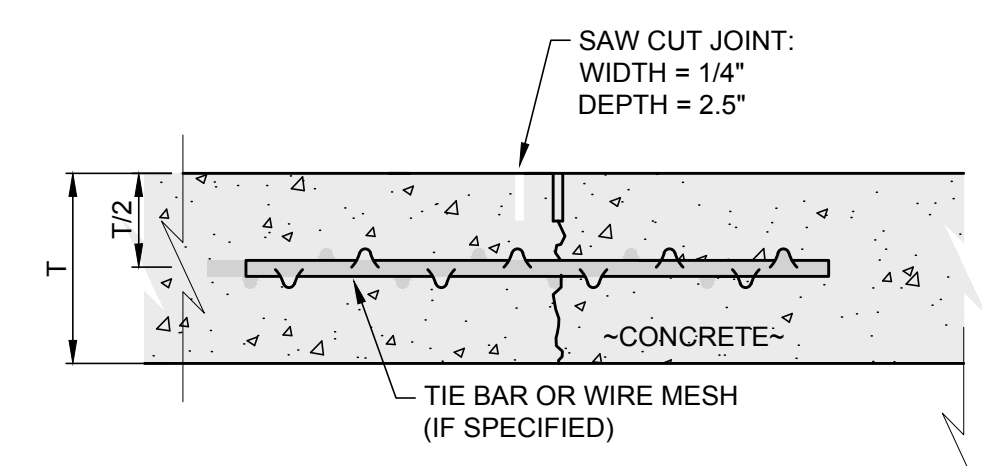


- NOTES:
- HAND TOOLED JOINTS SHALL BE APPLIED TO CREATE A "WINDOW PANE" EFFECT AROUND EACH PANEL.
  - ALL HAND TOOLED JOINTS AND EDGES SHALL BE FINISHED AFTER PANEL INTERIOR TEXTURE HAS BEEN APPLIED.
  - TOOLED EDGE SHALL BE 2" WIDTH EACH SIDE OF JOINT.

**CONCRETE SIDEWALK JOINT AND FINISH DETAIL**  
SCALE: NONE

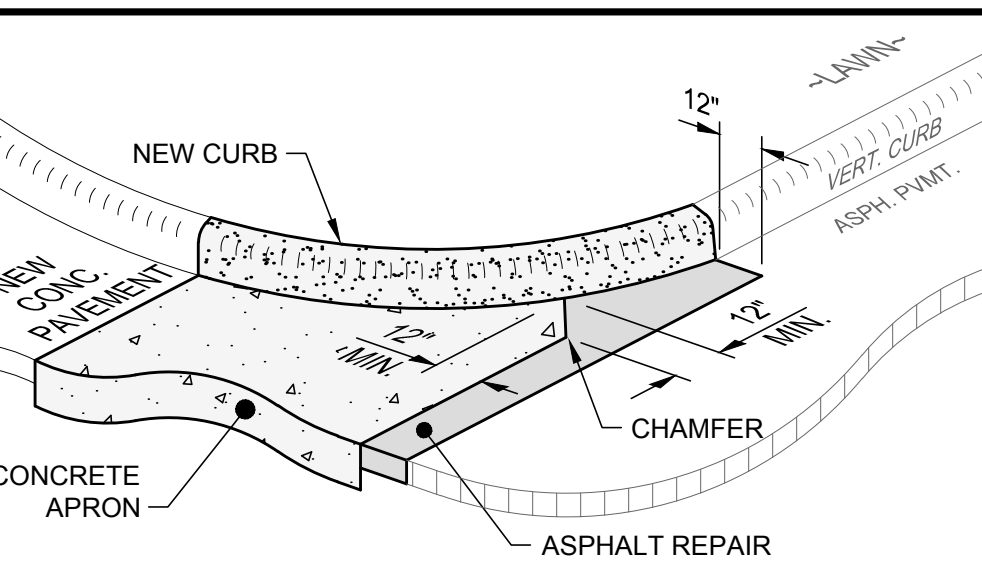


**EXPANSION JOINT DETAIL**  
SCALE: NONE



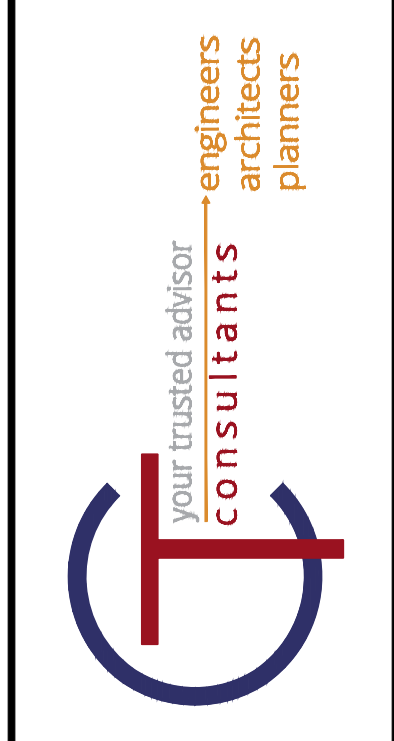
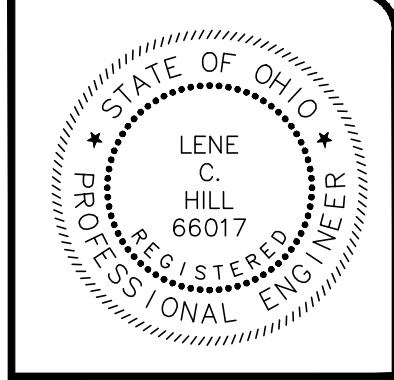
- NOTES:
- ALL JOINTS SHALL BE CLEANED AND LEFT UNSEALED.

**CONTRACTION JOINT DETAIL**  
SCALE: NONE



- NOTES:
- SEE SEPARATE DETAILS FOR ASPHALT AND CONCRETE PAVEMENTS, CURB AND SUBBASE REQUIREMENTS.
  - THIS DETAIL IS FOR REFERENCE ONLY; SEE LAYOUT PLAN FOR ACTUAL CONFIGURATION AND DIMENSIONS.

**CONCRETE DRIVE FLUSH WITH EX. ASPHALT PAVEMENT DETAIL**  
SCALE: NONE

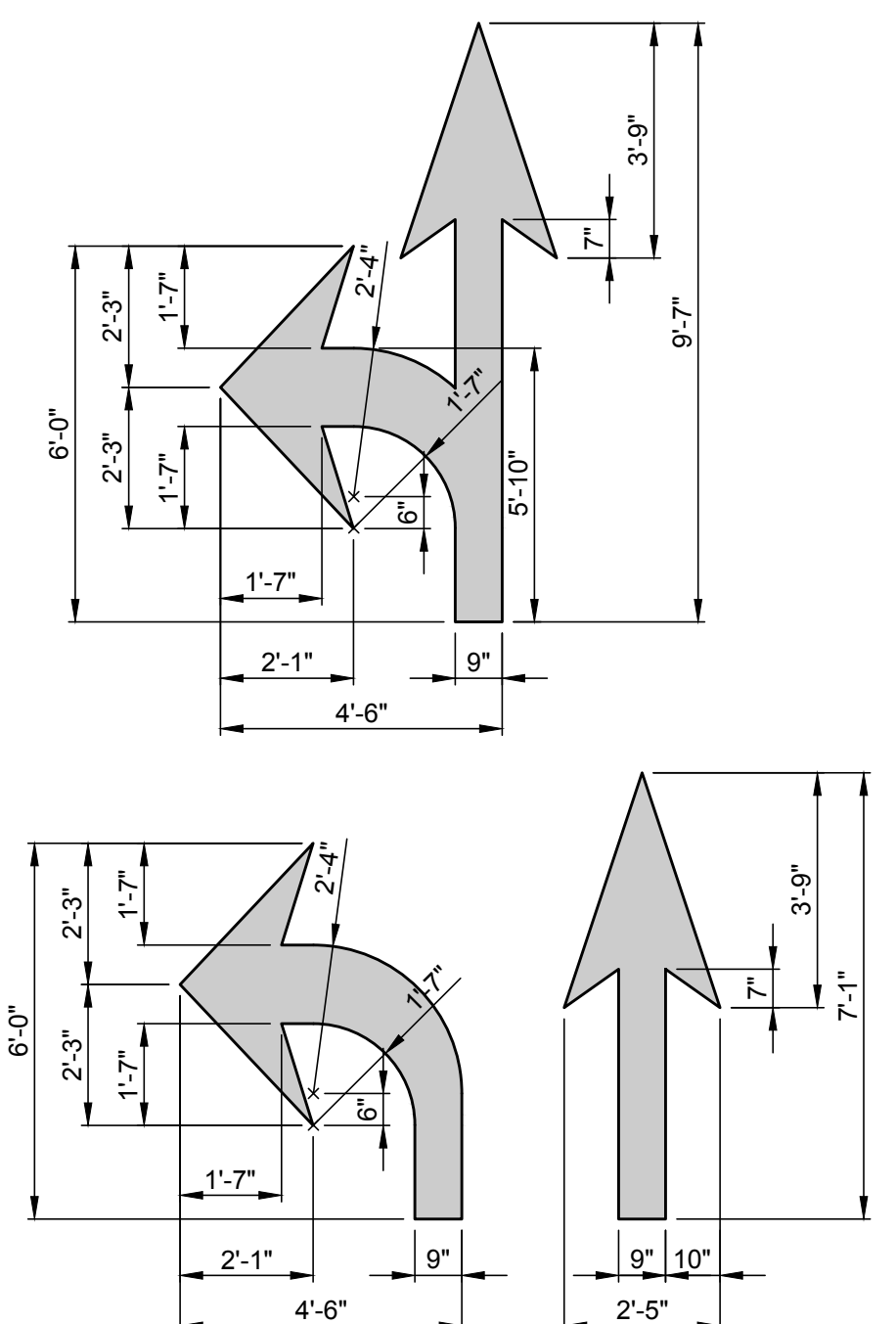


ISSUED FOR:	CD	NO	REVISION	DATE
LAKELAND TRANSFER CENTER	8/5/2019	1	REVISION	8/05/2019
LAKELAND COMMUNITY COLLEGE	AS SHOWN		REBID REVISION	
7601 CLOCKTOWER DR., KIRTLAND, OH 44094	LCH / GMS			
	GMS			
	LCH			

**LAKELAND TRANSFER CENTER**  
**LAKELAND COMMUNITY COLLEGE**  
7601 CLOCKTOWER DR., KIRTLAND, OH 44094

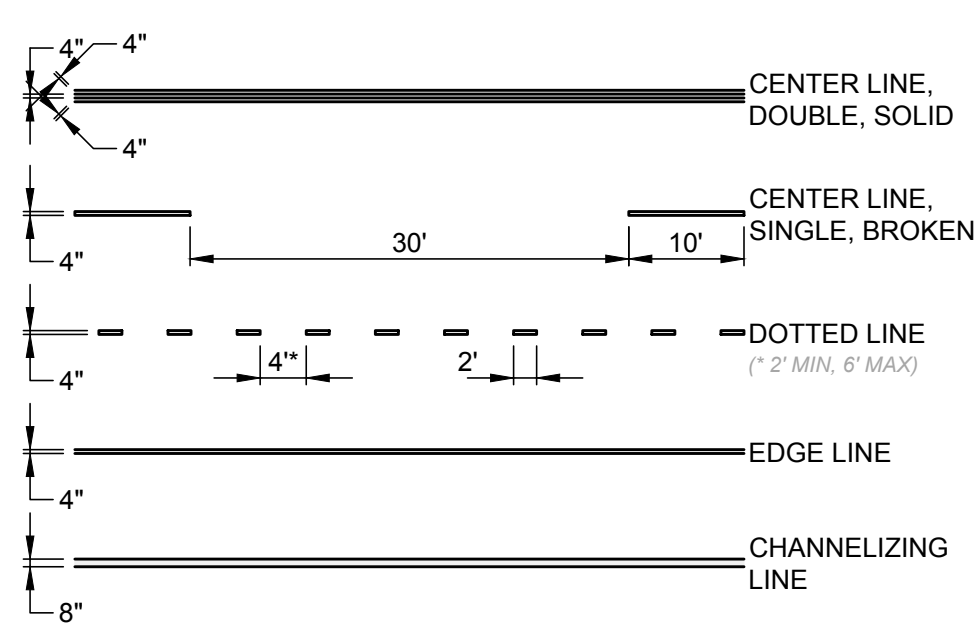
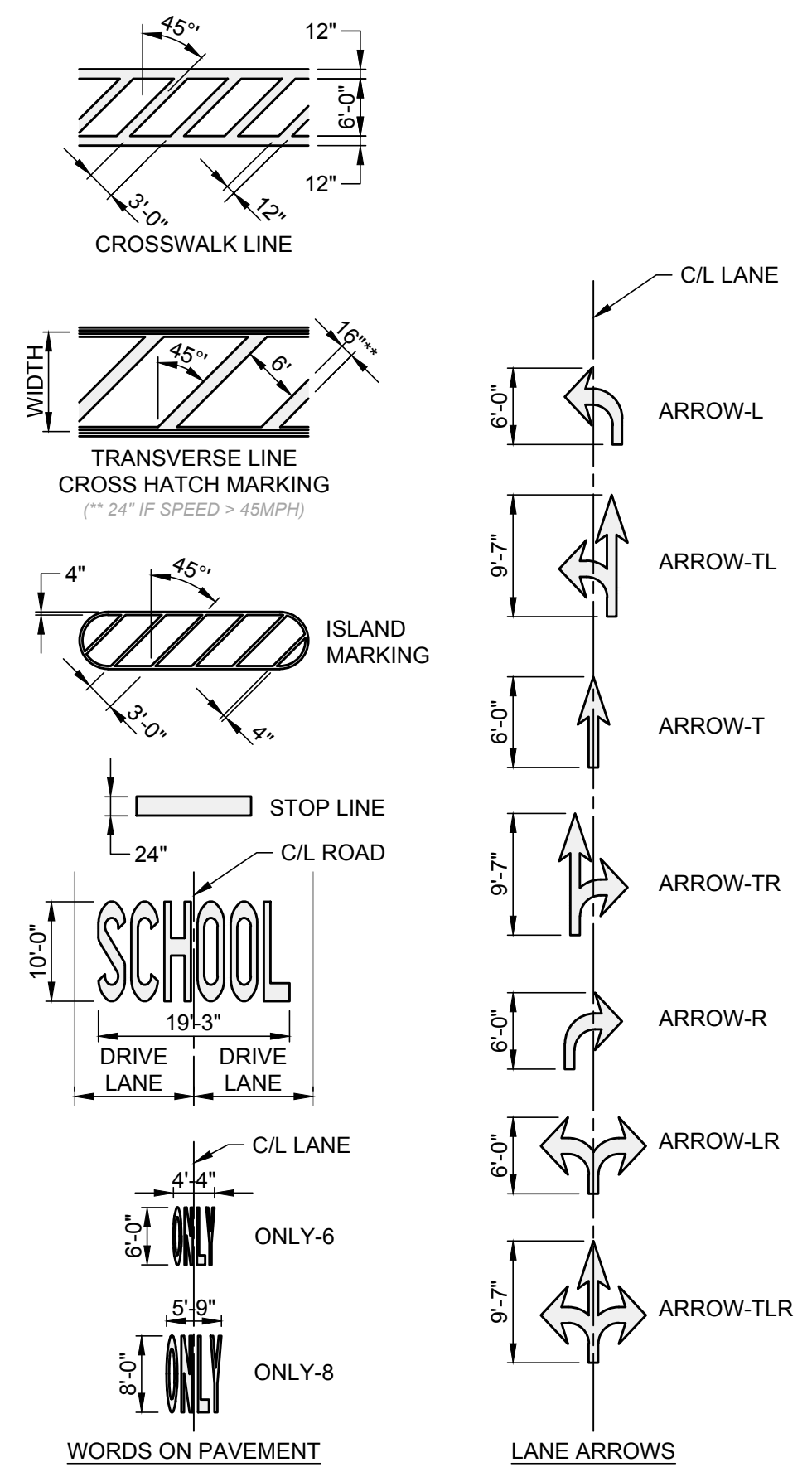
**CONSTRUCTION DETAILS**  
**PAVEMENT, SIDEWALK, & CURB**

PROJECT NO.	18050002
DISCIPLINE	CIVIL
SHEET NAME	DT_1
SHEET	OF
17	55



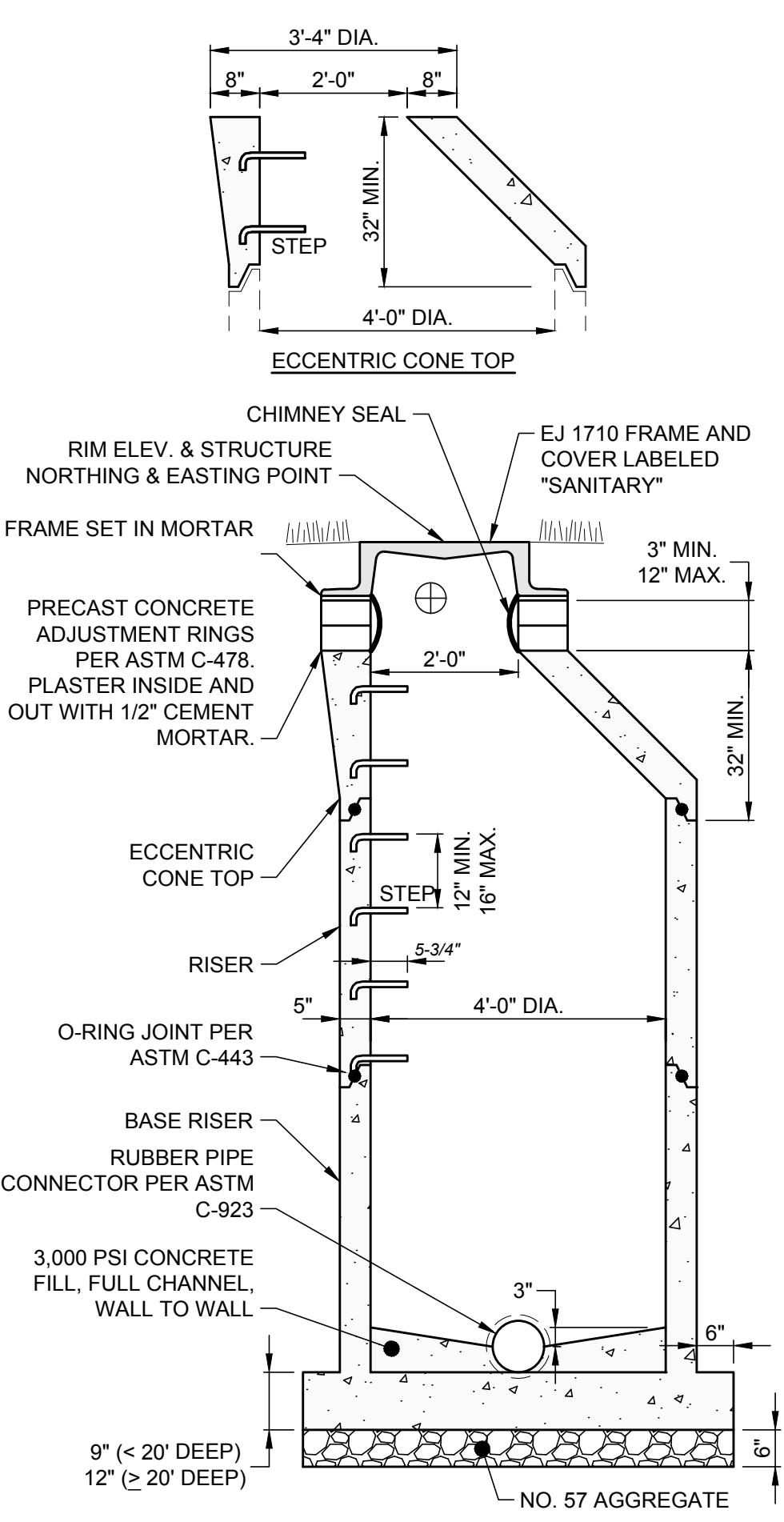
- NOTES:
- ALL PAINTED AREAS TO RECEIVE (2) 15 MIL COATS OF PAINT WITH 4 WEEK MIN. BETWEEN COATS.
  - SEE PAVEMENT MARKING DETAIL FOR ARROW PLACEMENT DIMENSIONS RELATIVE TO LANE LINES.

**TURN AND STRAIGHT ARROW (6 FT) DETAIL**  
SCALE: NONE



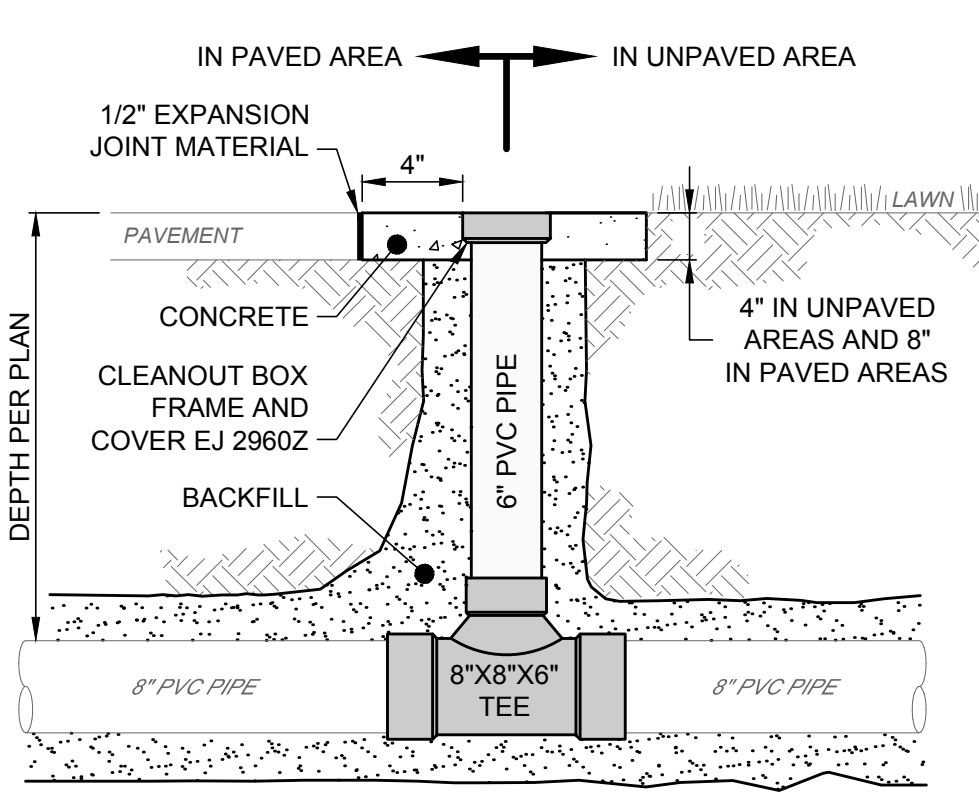
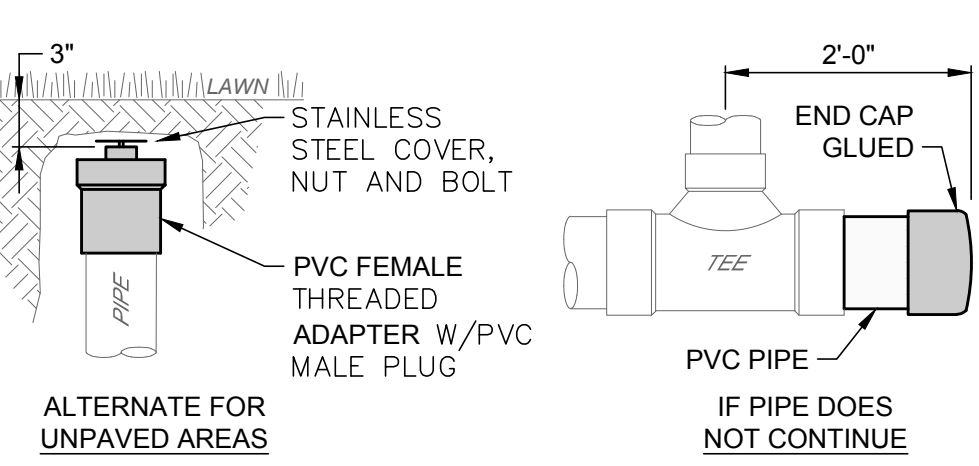
- NOTES:
- CENTER LINES MUST BE YELLOW. WORDS, LANE ARROWS, CHANNELIZING LINES, TRANSVERSE LINES, DOTTED LINES, EDGE LINES, STOP LINES AND CROSSWALKS MUST BE WHITE. PARKING STALL LINES AND ISLAND STRIPING TO DESIGNATE HANDICAP ACCESSIBILITY MUST BE BLUE. WORDS, LANE LINES AND ISLAND MARKING TO DESIGNATE FIRE LANES MUST BE RED. PARKING STALL LINES AND ISLAND MARKINGS SHALL BE WHITE OR YELLOW (AS PER PLAN). ALL OTHER PAVEMENT MARKINGS SHALL BE WHITE UNLESS SPECIFIED OTHERWISE.
  - ALL PAINTED AREAS SHALL RECEIVE (2) 15 MIL COATS OF PAINT WITH MINIMUM 4 OF WEEKS BETWEEN FIRST AND SECOND COATS, BUT NO LONGER THAN 12 WEEKS.
  - THIS DETAIL IS FOR REFERENCE ONLY; NOT ALL ITEMS MAY APPLY. SEE PLANS AND DETAILS FOR LOCATIONS AND SIZES.

**PAVEMENT MARKING DETAIL**  
SCALE: NONE



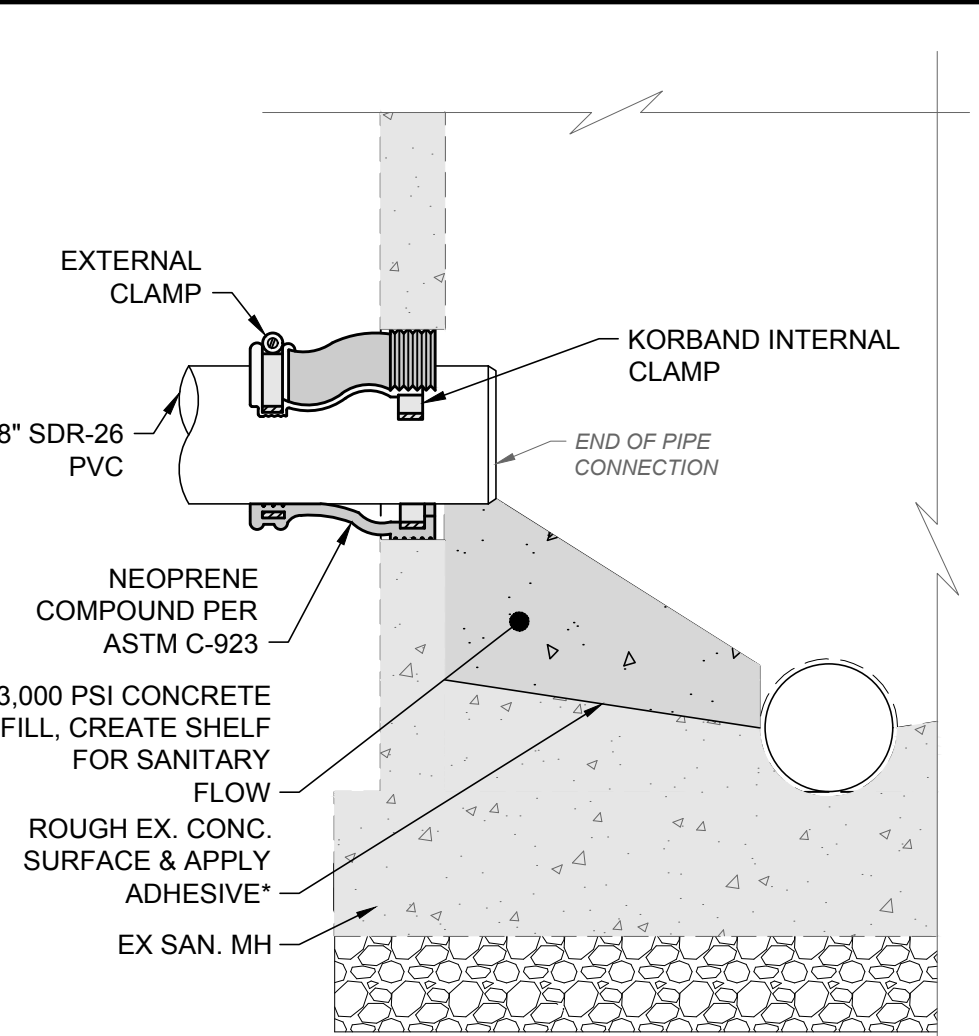
- NOTES:
- STRUCTURE TO MEET H-20 LOADING.
  - PRE-CAST CONCRETE SECTIONS SHALL BE MANUFACTURED AND FURNISHED AS SOLID SECTIONS WITHOUT LIFT HOLES.
  - PRE-CAST CONCRETE SHALL BE REINFORCED PER ASTM C-478.
  - TOP, TRANSITION AND REDUCER SECTIONS MAY BE ECCENTRIC CONE, CONCENTRIC CONE OR FLAT SLAB.
  - MANHOLE BASE MUST BE PRECAST WITH BASE RISER (I.E. MONOLITHIC).
  - USE REINFORCED PLASTIC MANHOLE STEPS.
  - FIRST STEP SHALL NOT BE THAN 2'-0" BELOW TOP OF FRAME. MAKE PROJECTION 3-1/2" IF IN 24" DIA. SECTION.
  - AN INTEGRAL FLEXIBLE PIPE TO MANHOLE CONNECTOR SHALL BE USED WHENEVER A PIPE PENETRATES INTO A PRECAST CONCRETE MANHOLE OR STRUCTURE. THE CONNECTOR SHALL BE THE Z-LOK CONNECTOR MANUFACTURED BY A-LOK PRODUCTS, INC., OR APPROVED EQUAL.

**PRE-CAST CONCRETE MANHOLE (SANITARY) DETAIL**  
SCALE: NONE



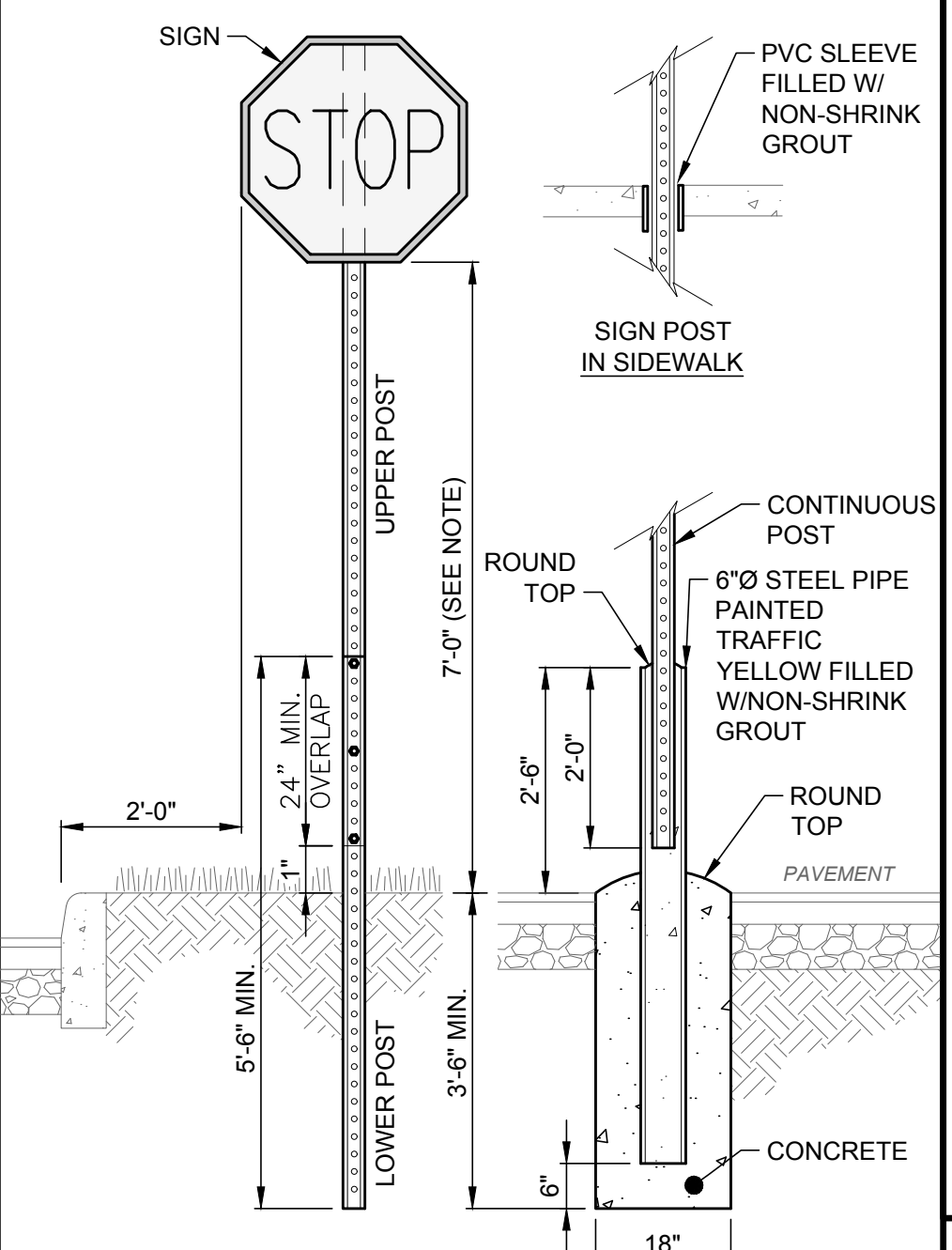
- NOTES:
- CONCRETE SHALL BE ODOT ITEM 499, CLASS QC-1.
  - USE 4" CLEANOUT FOR 4" PIPE; AND 6" CLEANOUT FOR 6" AND ABOVE (6" CLEANOUT SHOWN WITH 8" PIPE).
  - CASTING SHALL MEET H-20 LOADING.

**SANITARY CLEANOUT TYPE 1 DETAIL**  
SCALE: NONE



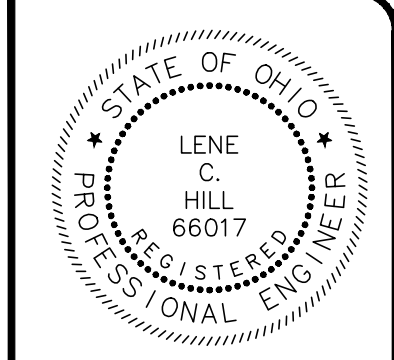
- NOTES:
- MAX. LENGTH OF PIPE CONNECTION FOR PVC, RCP OR VCP SHALL BE 24". DIP MAY BE FULL LENGTH PIECE.

**CONNECT TO EX. SAN. MANHOLE**  
SCALE: NONE



- NOTES:
- CONCRETE SHALL BE ODOT ITEM 499, CLASS QC-1.
  - POSTS SHALL BE 2 LB/FT GALVANIZED STEEL U-CHANNEL WITH 3/8" HOLES ON 1" CENTERS.
  - "STOP" SIGN SHOWN FOR REFERENCE. SEE LAYOUT PLAN FOR SPECIFIC TYPE OF SIGNS TO BE USED.
  - IN BUSINESS, COMMERCIAL AND RESIDENTIAL AREAS, THE MINIMUM HEIGHT MEASURED FROM BOTTOM OF SIGN TO TOP OF CURB OR EDGE OF PAVEMENT SHALL BE 7'-0". THE HEIGHT TO THE BOTTOM OF A SECONDARY SIGN MOUNTED BELOW ANOTHER SIGN SHALL BE 6'-0".

**SIGN POST DETAIL**  
SCALE: NONE

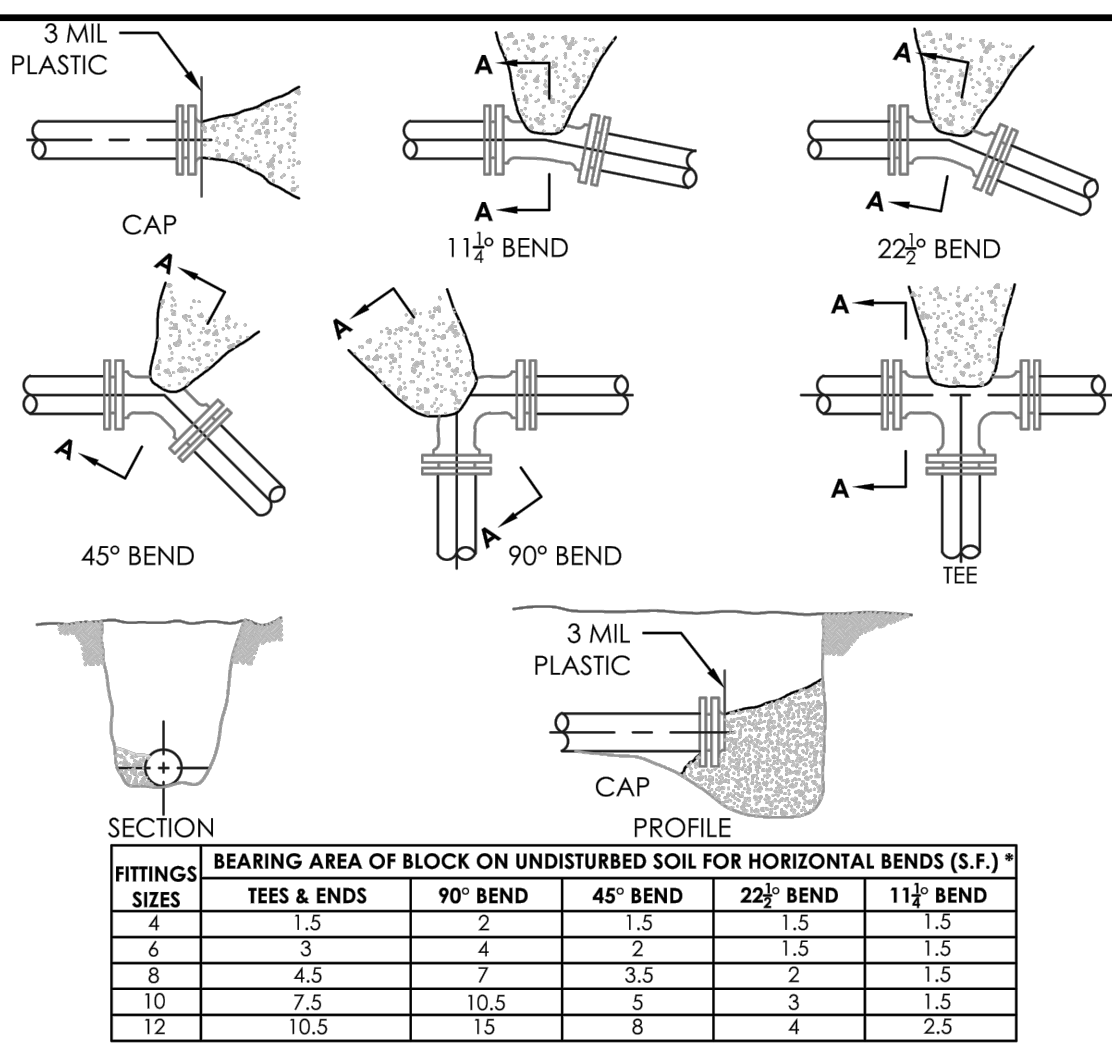


ISSUED FOR:	CD	NO	REVISION	DATE
LAKELAND TRANSFER CENTER	8/5/2019			
LAKELAND COMMUNITY COLLEGE	8/5/2019			
7601 CLOCKTOWER DR., KIRTLAND, OH 44094	AS SHOWN			
	LCH / GMS			
	GMS			
	LCH			

**LAKELAND TRANSFER CENTER**  
LAKELAND COMMUNITY COLLEGE  
7601 CLOCKTOWER DR., KIRTLAND, OH 44094

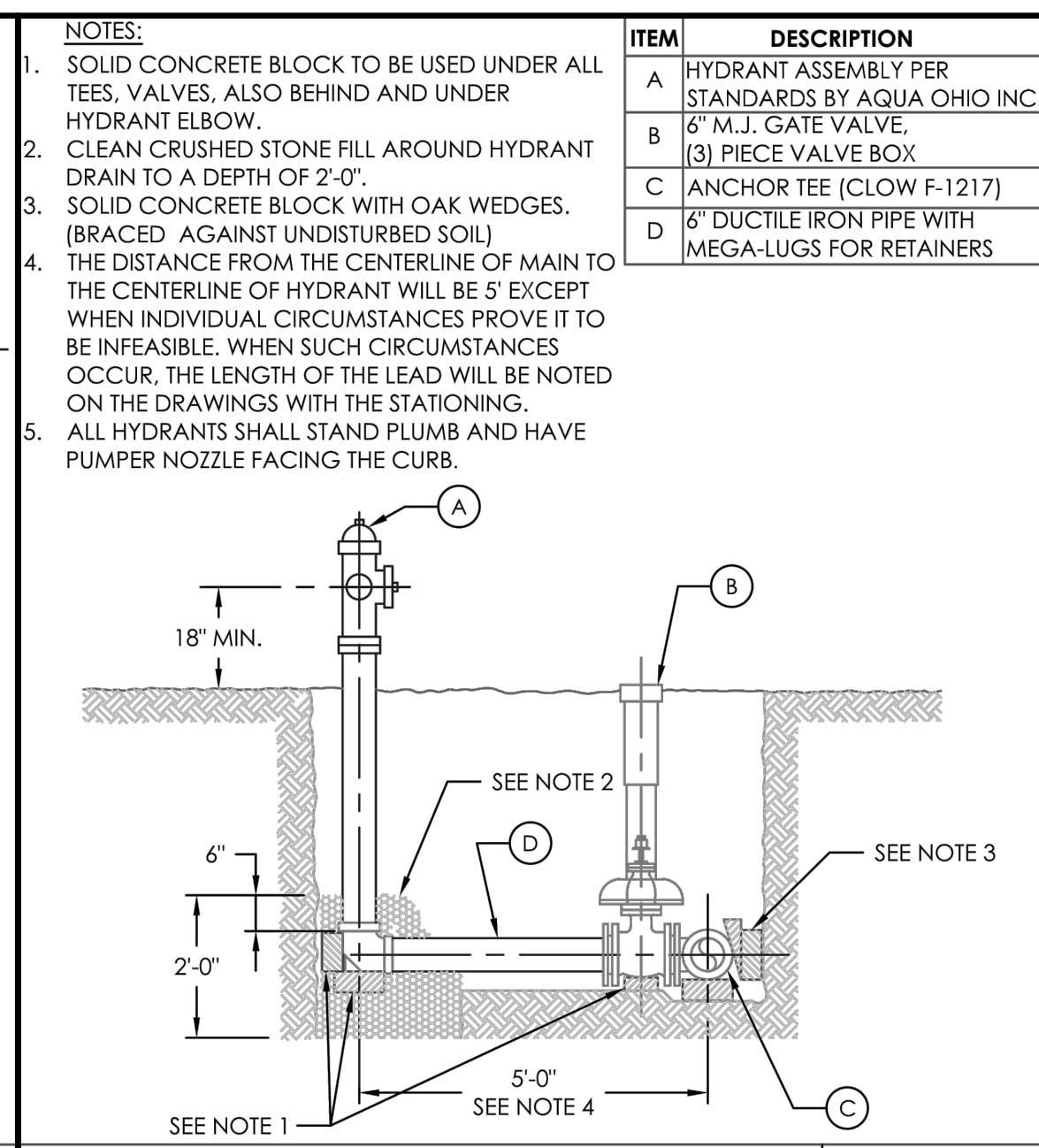
**CONSTRUCTION DETAILS**  
**PAVEMENT MARKINGS & SANITARY**

PROJECT NO.	18050002
DISCIPLINE	CIVIL
SHEET NAME	DT_2
SHEET	18
OF	55

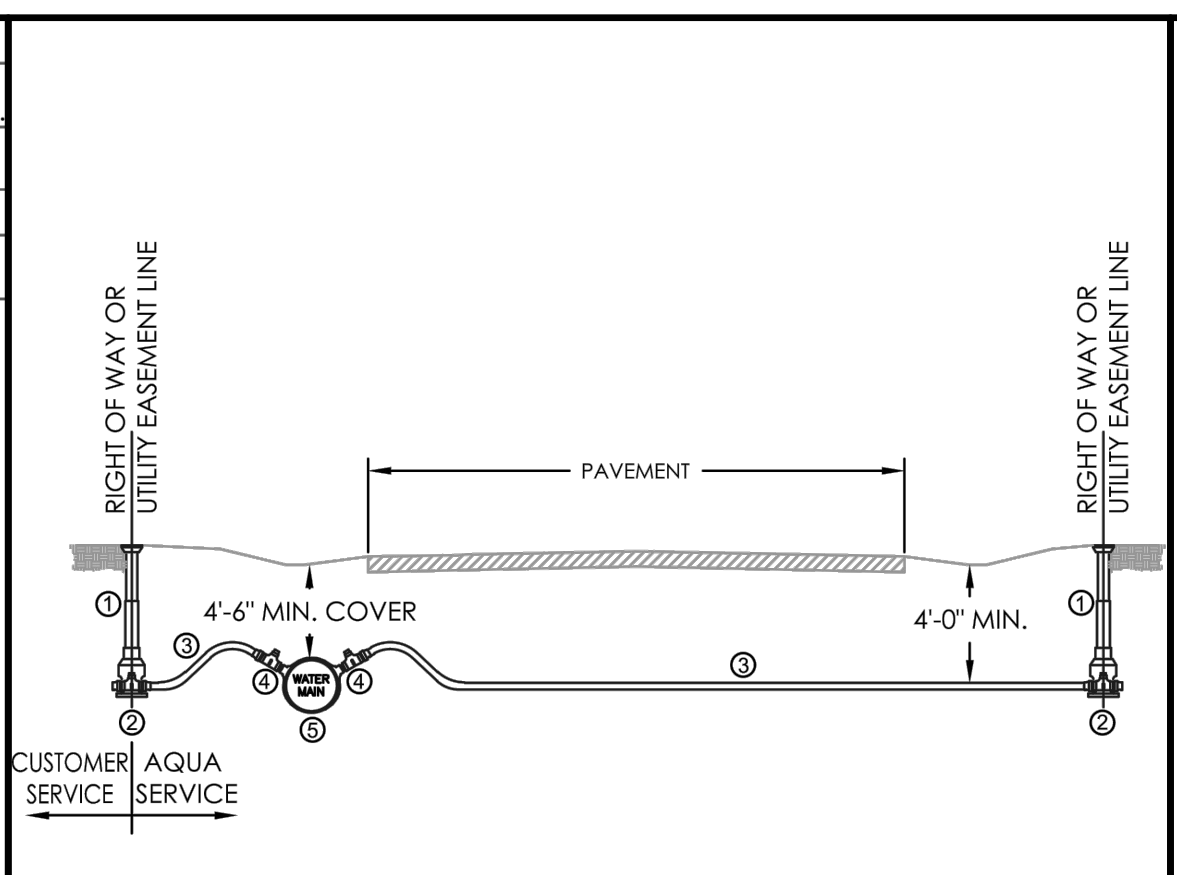


FITTINGS SIZES	BEARING AREA OF BLOCK ON UNDISTURBED SOIL FOR HORIZONTAL BENDS (S.F.) *				
	TEES & ENDS	90° BEND	45° BEND	22 1/2° BEND	11 1/2° BEND
4	1.5	2	1.5	1.5	1.5
6	3	4	3	3	3
8	4.5	7	5	4	4
10	7.5	10.5	8	6	6
12	10.5	15	11	8	8

- NOTES:
- ALL BLOCKING SHALL BE POURED AGAINST FIRM, UNDISTURBED SOIL.
  - BEARING AREA AT FITTINGS NOT GIVEN IN BEARING TABLE SHALL BE AS DIRECTED BY THE ENGINEER.
  - WHEN POURING AGAINST PLUGS AND BLIND FLANGES SET A PIECE OF 3 MIL PLASTIC AGAINST FITTING, TO KEEP CONCRETE OFF BOLTS.
  - LAYOUT TO BE APPROVED BY ENGINEER PRIOR TO CONCRETE POUR.
  - BASED ON 150 PSI STATIC PRESSURE PLUS 50 PSI WATER HAMMER AND 2000 PSF SOIL BEARING.
  - PIPE JOINTS AND BOLTS MUST BE ACCESSIBLE AFTER CONCRETE IS POURED.
  - THRUST BLOCK DETAILS ARE SHOWN AS MINIMUM AND MAY REQUIRE ADDITIONAL BLOCKING.
  - CONCRETE CINDER BLOCKS MAY BE USED IN PLACE OF POURED CONCRETE FOR WATER MAINS 12" AND SMALLER.



ITEM	DESCRIPTION
A	HYDRANT ASSEMBLY PER STANDARDS BY AQUA OHIO INC.
B	6" M.J. GATE VALVE, (3) PIECE VALVE BOX
C	ANCHOR TEE (CLOW F-1217)
D	6" DUCTILE IRON PIPE WITH MEGA-LUGS FOR RETAINERS



- FITTINGS AND TYPE OF MATERIALS REQUIRED BY AQUA OHIO, INC.
- CURB BOX
  - 1" BRASS CURB STOP
  - SERVICE LINE
  - 1" BRASS CORPORATION STOP
  - MAXIMUM DIRECT TAP SHALL BE 1" FOR 8" AND 12" DIA. D.I.P. AND 2" FOR 16" DIA. D.I.P. BRASS SERVICE SHALL BE WITH STAINLESS STEEL STRAP TO BE USED OTHERWISE
- \* RESIDENTS TO BE NOTIFIED BEFORE SHUT OFF

FIELD-LOK GASKETS OR OTHER APPROVED PIPE RESTRAINT SYSTEMS WILL BE USED TO RESTRAIN PIPE, OR WITH PRIOR APPROVAL BY AQUA FOR THE FOLLOWING SITUATIONS:

- FOR VERTICAL BENDS IN LIEU OF DEAD-MAN CONCRETE RESTRAINT
- FOR VERTICAL AND HORIZONTAL BENDS INSTALLED IN POOR SOIL CONDITIONS
- FOR HYDRANTS OR BENDS WITH SLOPING GROUND BEHIND THE POINT OF THRUST

NOTE: MEG-A-LUGS OR APPROVED EQUAL SHALL BE USED TO RESTRAIN FITTINGS AND VALVES

THRUST BLOCKS WILL NORMALLY BE USED FOR ALL HORIZONTAL BENDS. THE CONTRACTOR WILL GET WRITTEN PRIOR APPROVAL FROM AQUA TO SUBSTITUTE A RESTRAINT SYSTEM IN LIEU OF THRUST BLOCKING FOR HORIZONTAL BENDS.

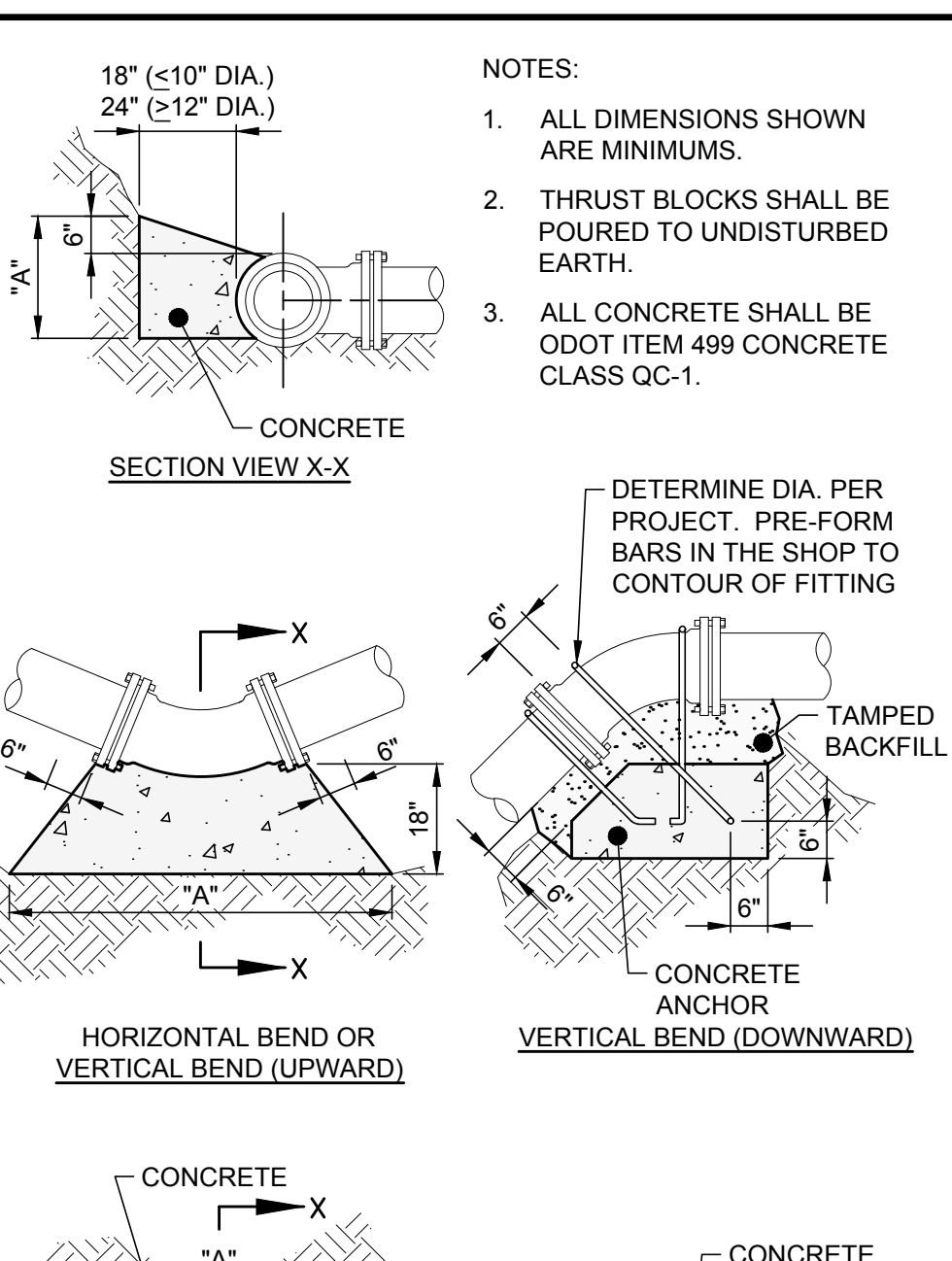
CONTRACTOR WILL SUPPLY ALL FIELD-LOK GASKETS

LINEAR FEET OF MECHANICAL PIPE RESTRAINT REQUIRED (EITHER SIDE OF FITTING)							
PIPE DIA. (IN.)	DEAD END	90°	45°	22.5°	11.25°	VERT. UP	VERT. DOWN
4	36	16	8	0	0	4	16
6	60	28	13	0	0	10	24
8	108	54	18	0	0	18	36
12	162	90	36	18	0	36	72
16	214	118	49	23	12	12	21
24	304	165	68	33	16	16	30

CONSTRUCTION CRITERIA:

- FOR WORKING AND/OR TEST PRESSURES < 150 PSI.
- TYPE 2 TRENCH WITH MINIMUM OF 4.0 FT. OF COVER
- POLYWRAPPED PIPE
- 18 FT. PIPE LENGTHS
- FITTINGS RESTRAINED WITH MEG-A-LUGS OR APPROVED EQUAL

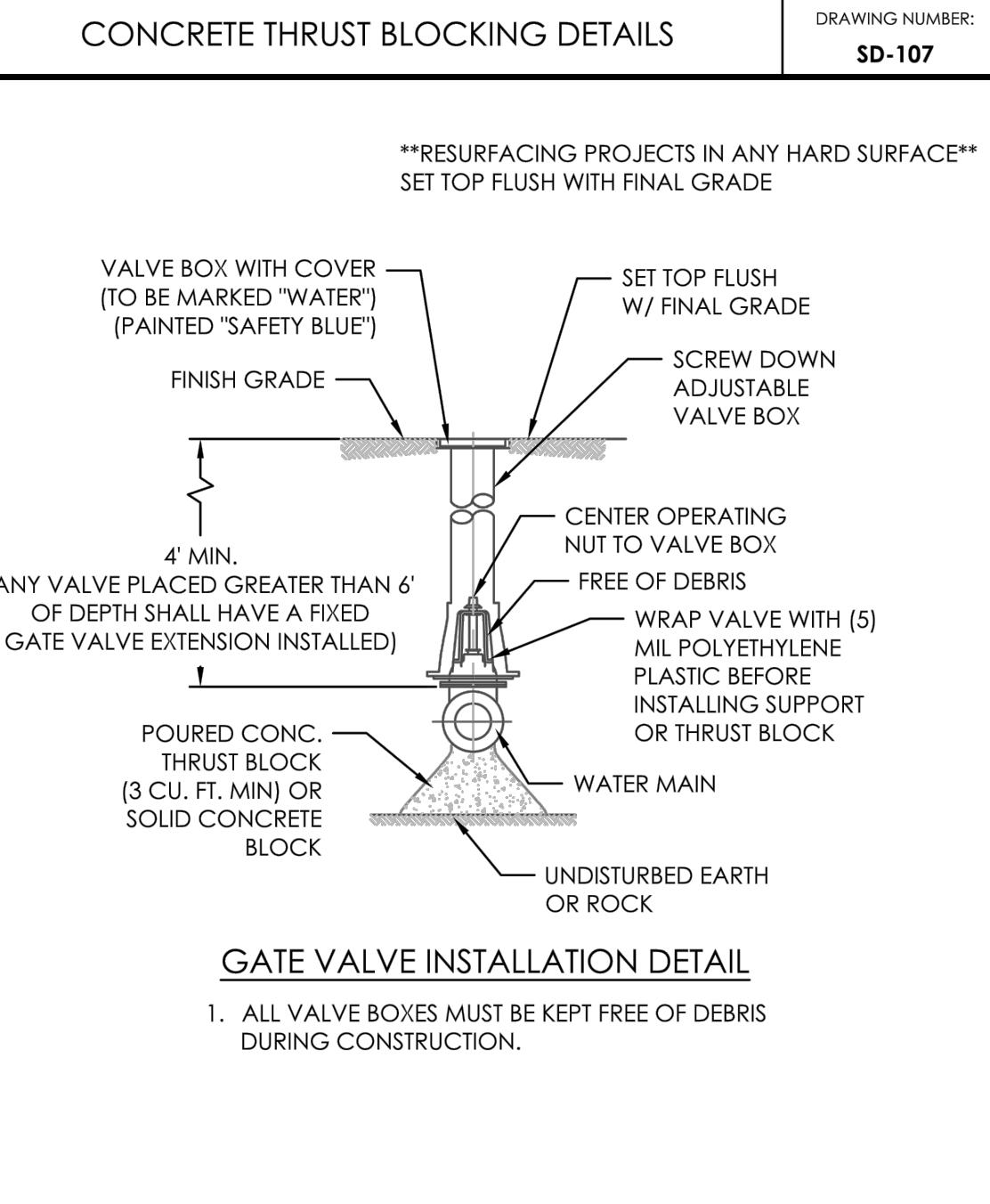
NOTE: IF FIELD CONDITIONS DO NOT CONFORM TO THE NOTED CONSTRUCTION CRITERIA, THE CONTRACTOR SHALL GET WRITTEN APPROVAL FROM AQUA FOR THE NUMBER OF RESTRAINED JOINTS.



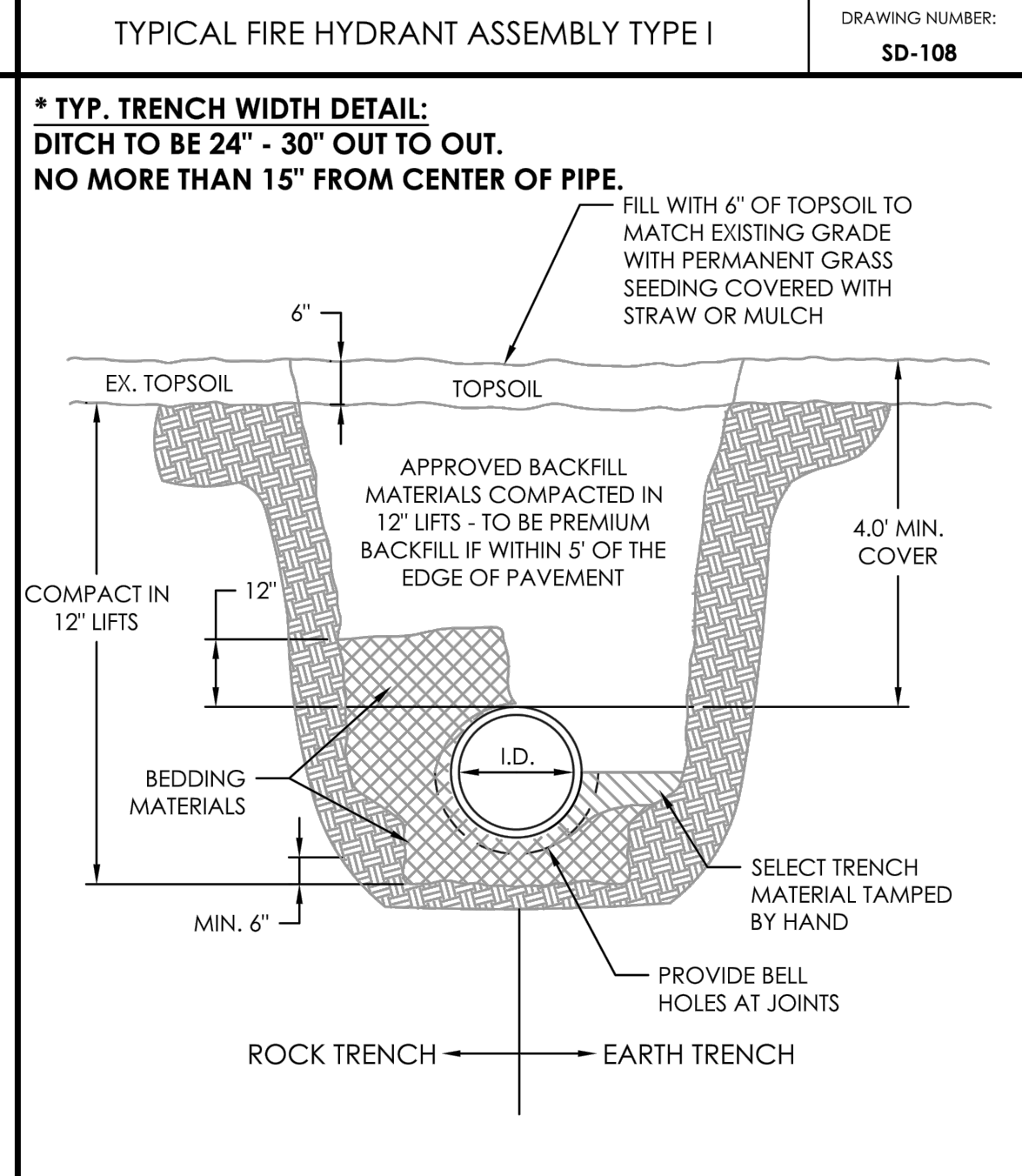
MIN. CONCRETE VOLUME FOR VERTICAL BENDS

DIA.	VOLUME	"A" DIMENSIONS					
		90°	45°	22.5°	TEE PLUG		
6"	4 C.F.	6"	17"	13"	9"	13"	14"
8"	11 C.F.	8"	23"	17"	12"	17"	19"
10"	22 C.F.	10"	28"	21"	15"	21"	24"
12"	37 C.F.	12"	34"	25"	18"	25"	29"
16"	71 C.F.	16"	45"	33"	24"	28"	38"

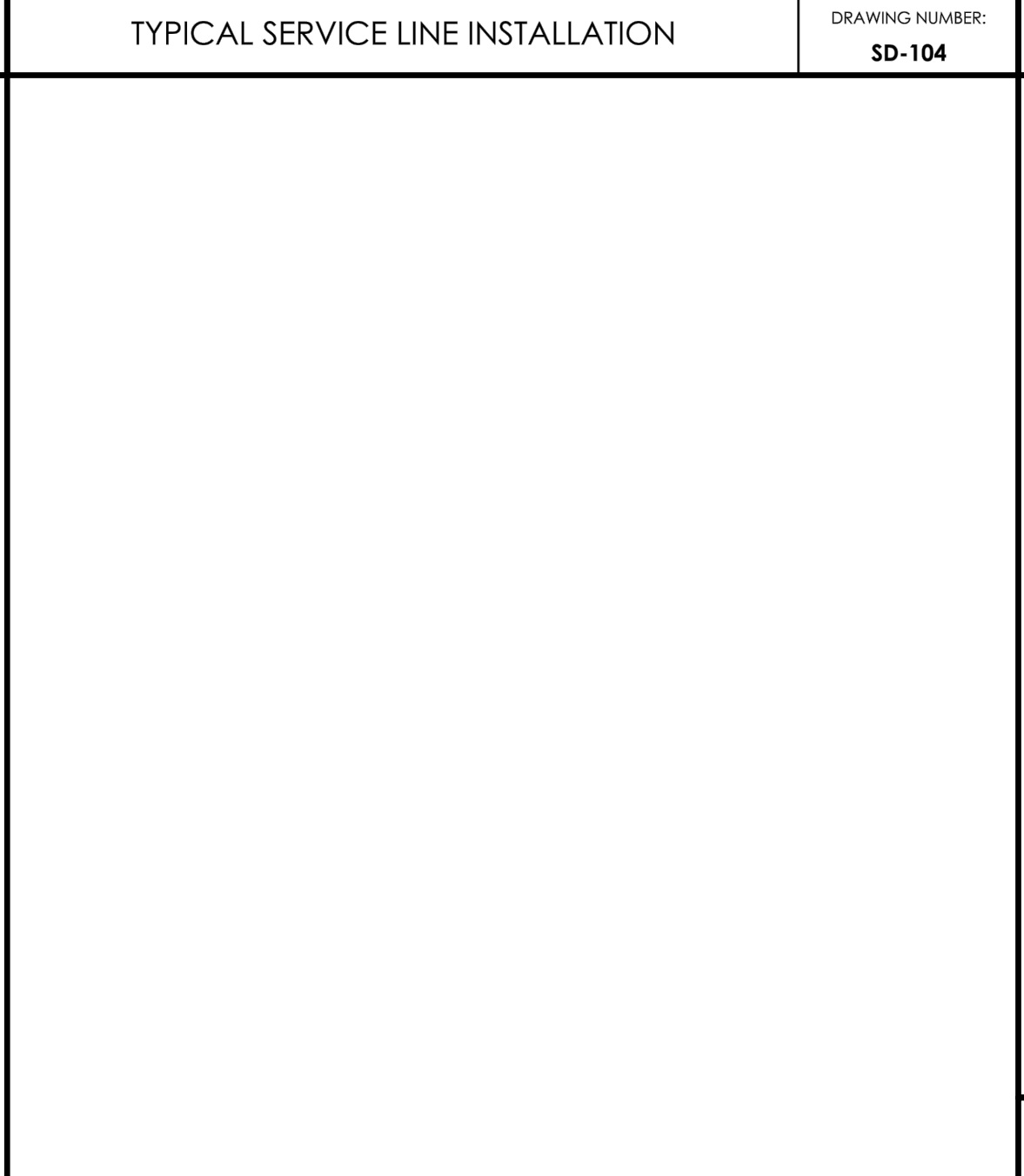
CONCRETE THRUST BLOCK DETAIL  
SCALE: NONE



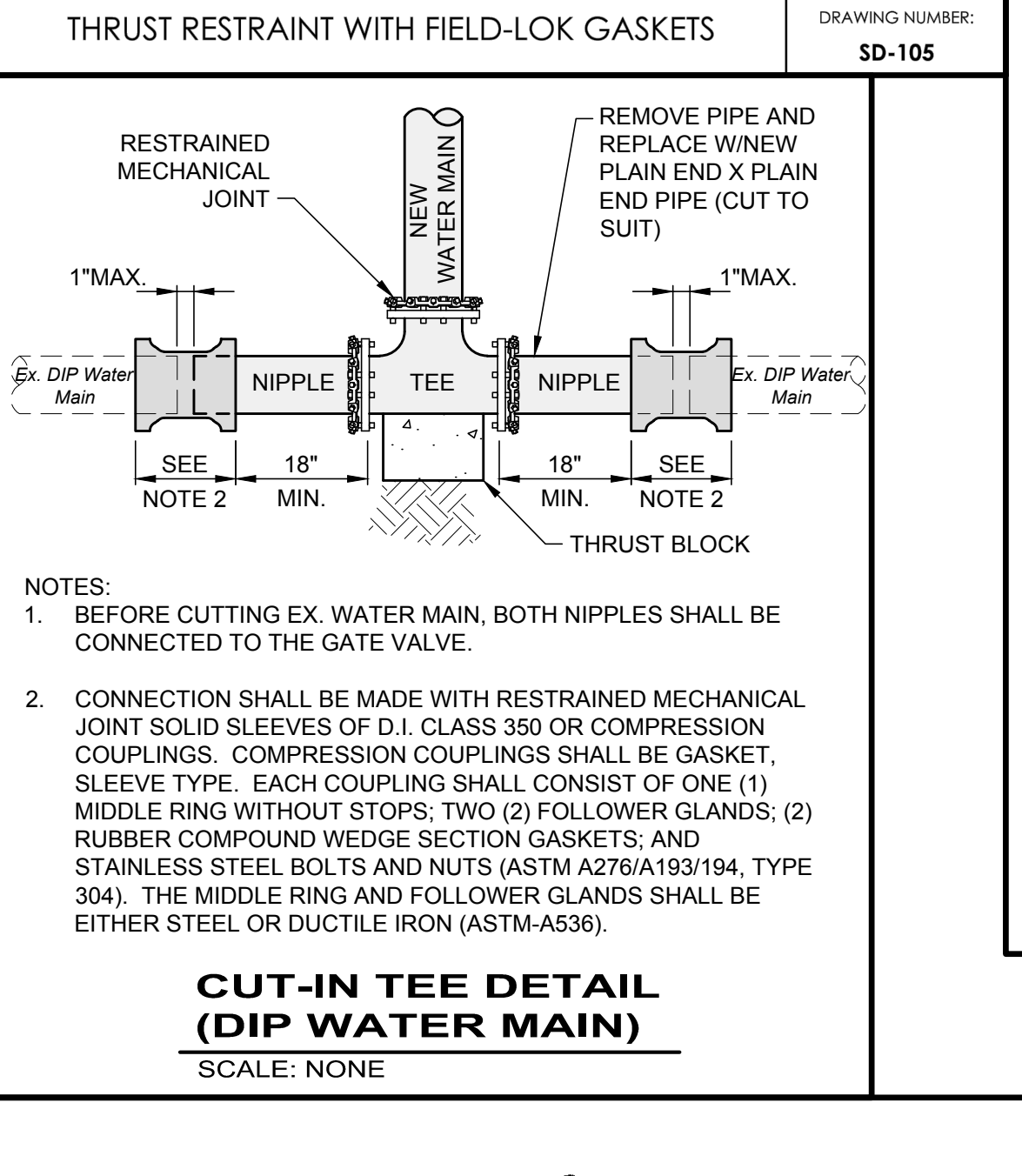
GATE VALVE INSTALLATION DETAIL  
DRAWING NUMBER: SD-113



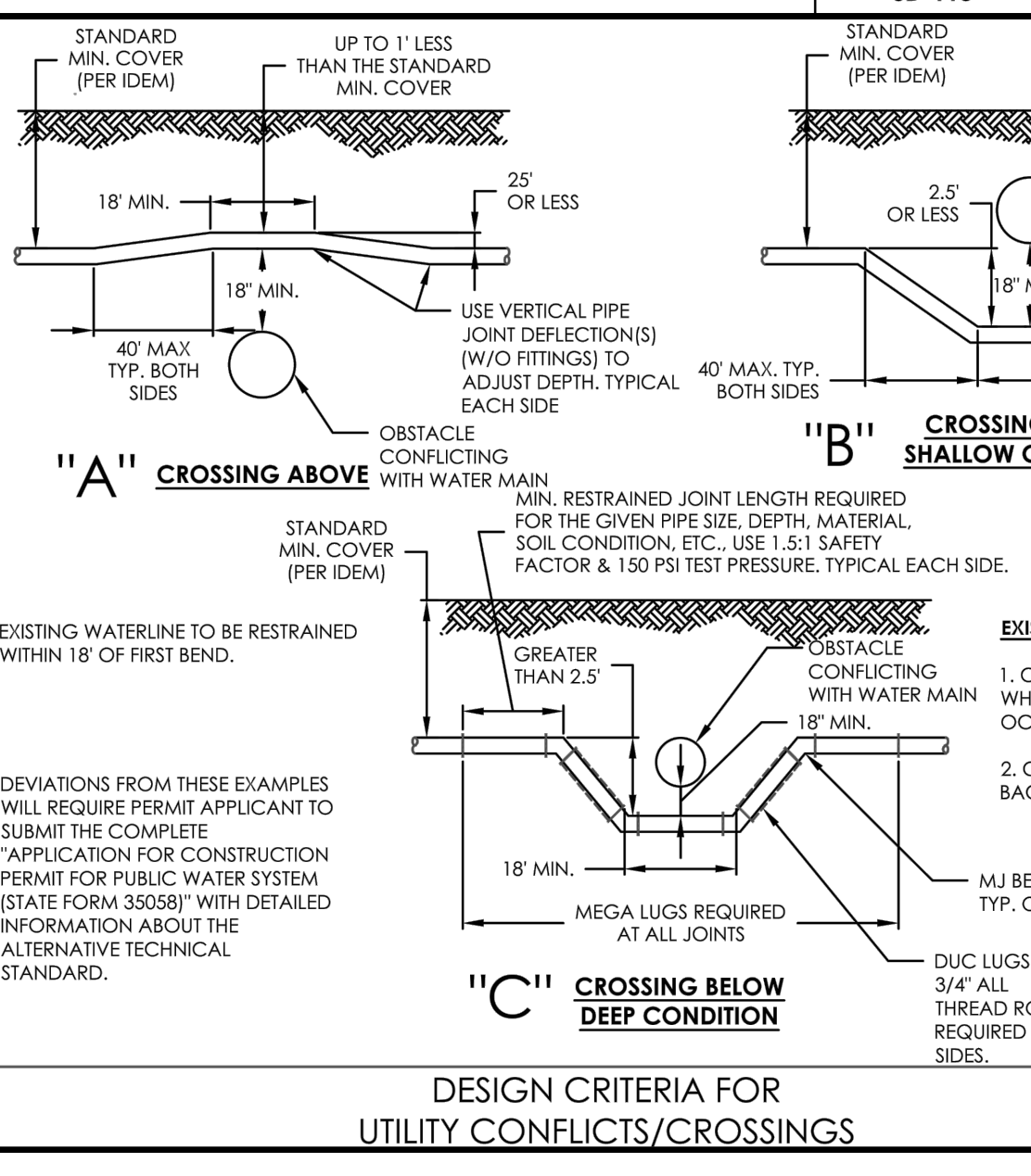
TYPICAL TRENCH DETAIL OUTSIDE OF PAVEMENT  
DRAWING NUMBER: SD-115



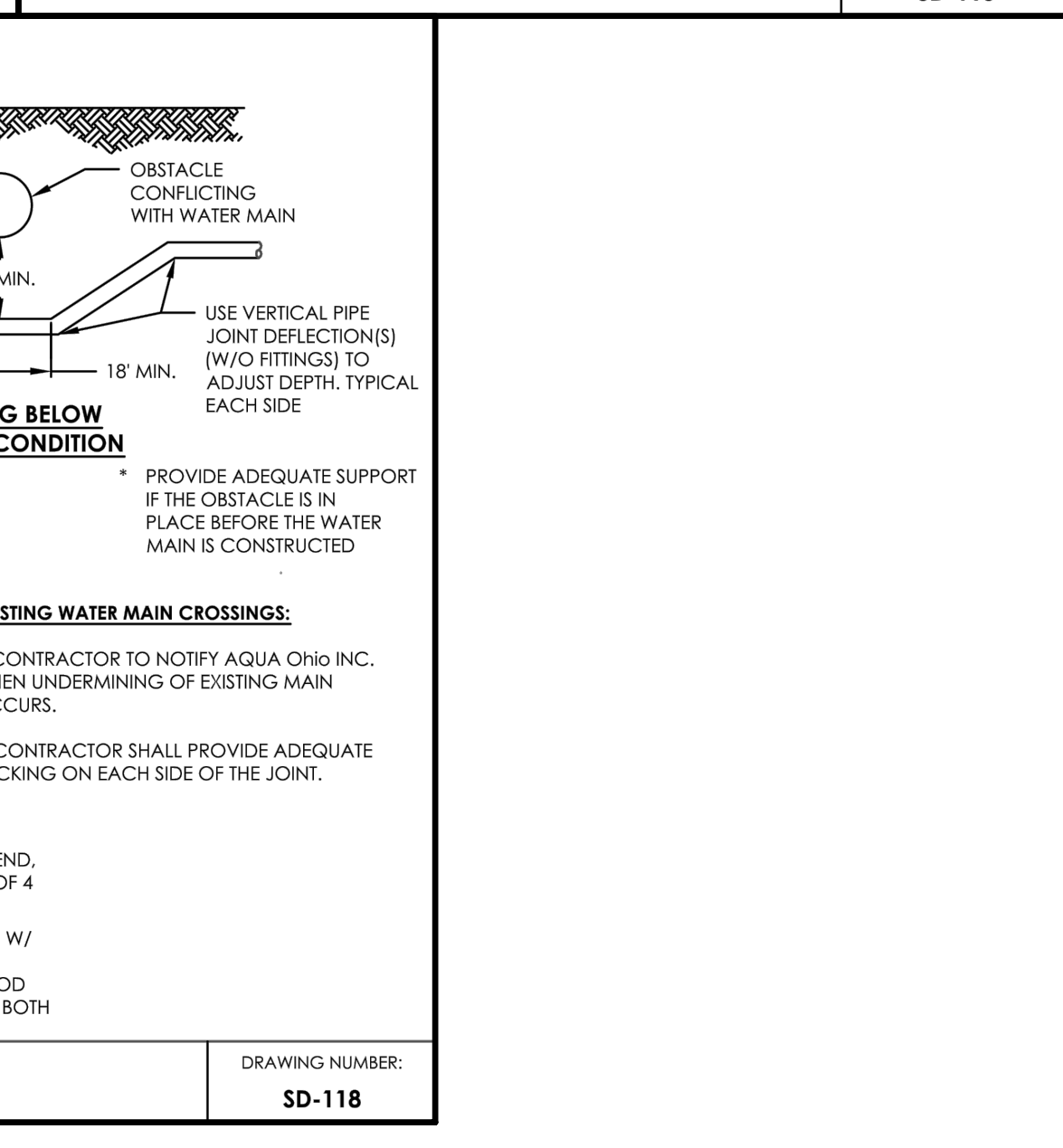
CUT-IN TEE DETAIL (DIP WATER MAIN)  
SCALE: NONE



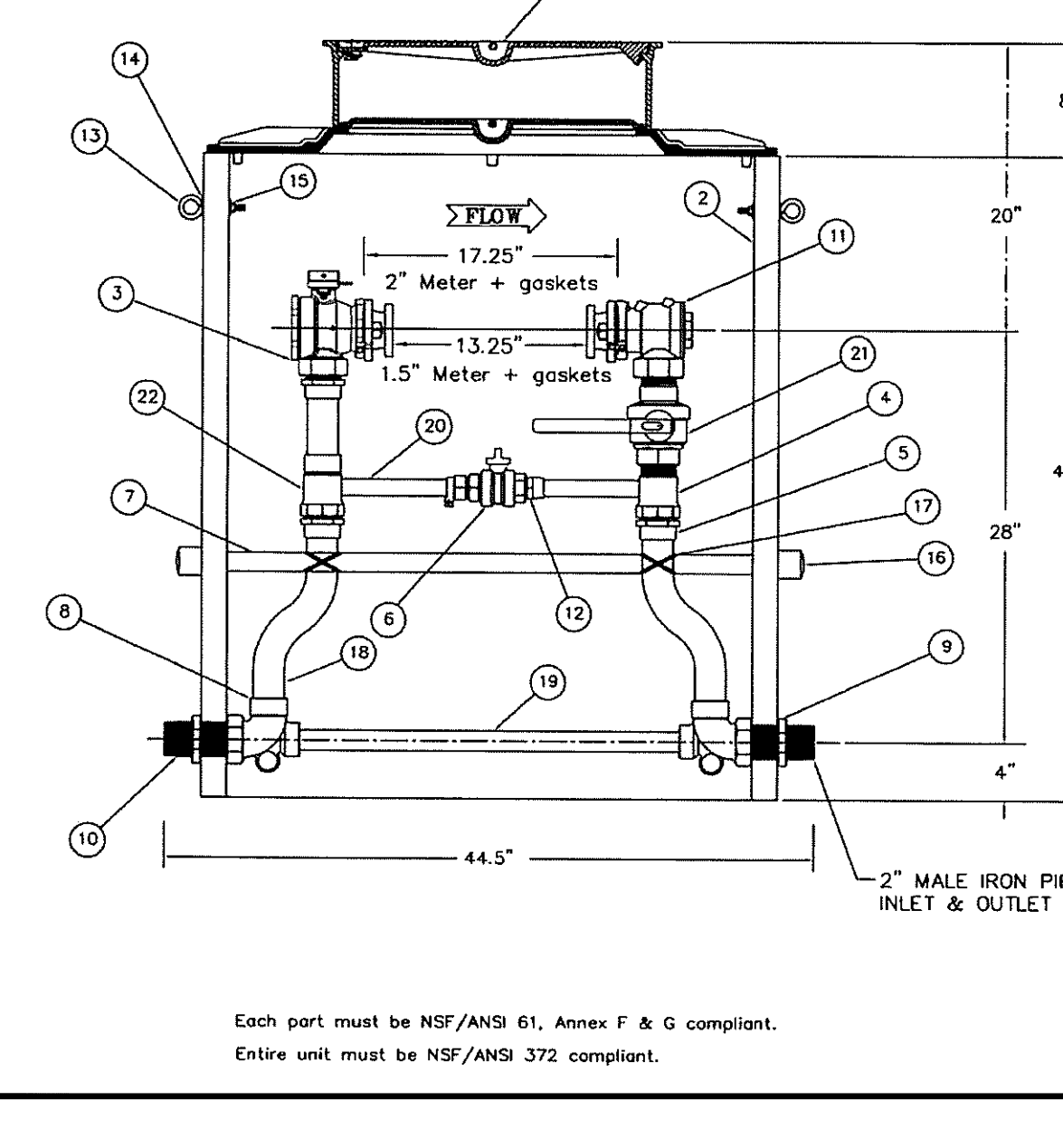
THRUST RESTRAINT WITH FIELD-LOK GASKETS  
DRAWING NUMBER: SD-105



DESIGN CRITERIA FOR UTILITY CONFLICTS/CROSSINGS  
DRAWING NUMBER: SD-118



DESIGN CRITERIA FOR UTILITY CONFLICTS/CROSSINGS  
DRAWING NUMBER: SD-118



Each part must be NSF/ANSI 61, Annex F & G compliant.  
Entire unit must be NSF/ANSI 372 compliant.

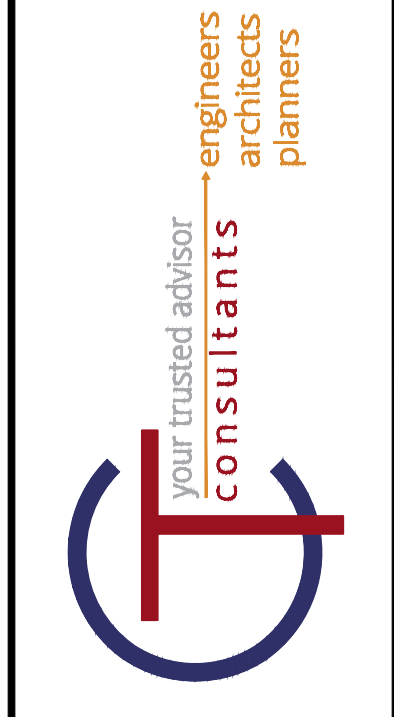
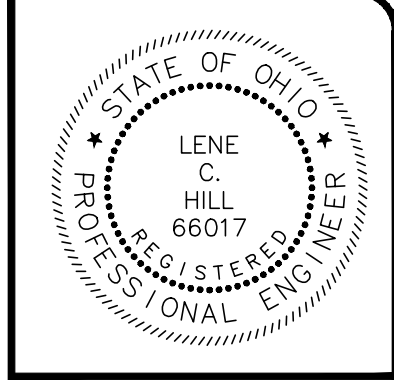
ITEM	DESCRIPTION	QTY.	QTY. OR P/N
1	Monitor Cover w/Inner Lid	1	MC-36-MB-T
2	36" Corrugated PVC Pit	1	300253
3	Angle Ball Valve	1	BF413-777W-MSB-NL
4	Tee	1	T184-774-NL
5	Solder Bushing	3	C59-77-NL
6	Ball Valve	1	B41-444W-NL
7	1" PVC Brace bar	1	PS-BB-36
8	Elbow	2	CSTEC-7-5-NL
9	Lock Nut	2	800975
10	Nipple	2	A-43908-09-NL
11	Angle Dual Check Valve	1	HF431-777-MSB-NL
12	Solder Bushing	1	C59-44-NL
13	Eye Bolt	2	800975
14	Flat Washer	4	800976
15	Lock Nut	2	800977
16	1" PVC Cap	2	050424
17	Plastic Tie	4	300370
18	2 1/8" OD Copper Tube	2	
19	1 3/8" OD Copper Tube	1	
20	1 1/8" OD Copper Tube	2	
21	Ball Valve	1	BB1-777-HB-67-NL
22	Tee	1	T154-774-NL

\* SOLD SEPARATELY

NOTE: ENTIRE UNIT SHALL COMPLY WITH NSF 372

ASSY. 1.5" & 2" FITSETTER W/BYPASS  
BALL VALVE Inlet & Outlet, CHECK VALVE Outlet  
REF. FORM METER BODY CO. DWG # 8-25455-11B-NL  
DRAWN BY DATE 4-15-13 DRAWING NO. CSD-I-H  
DWG BY M.F. SCALE 1=10

3-17-14  
AQUA

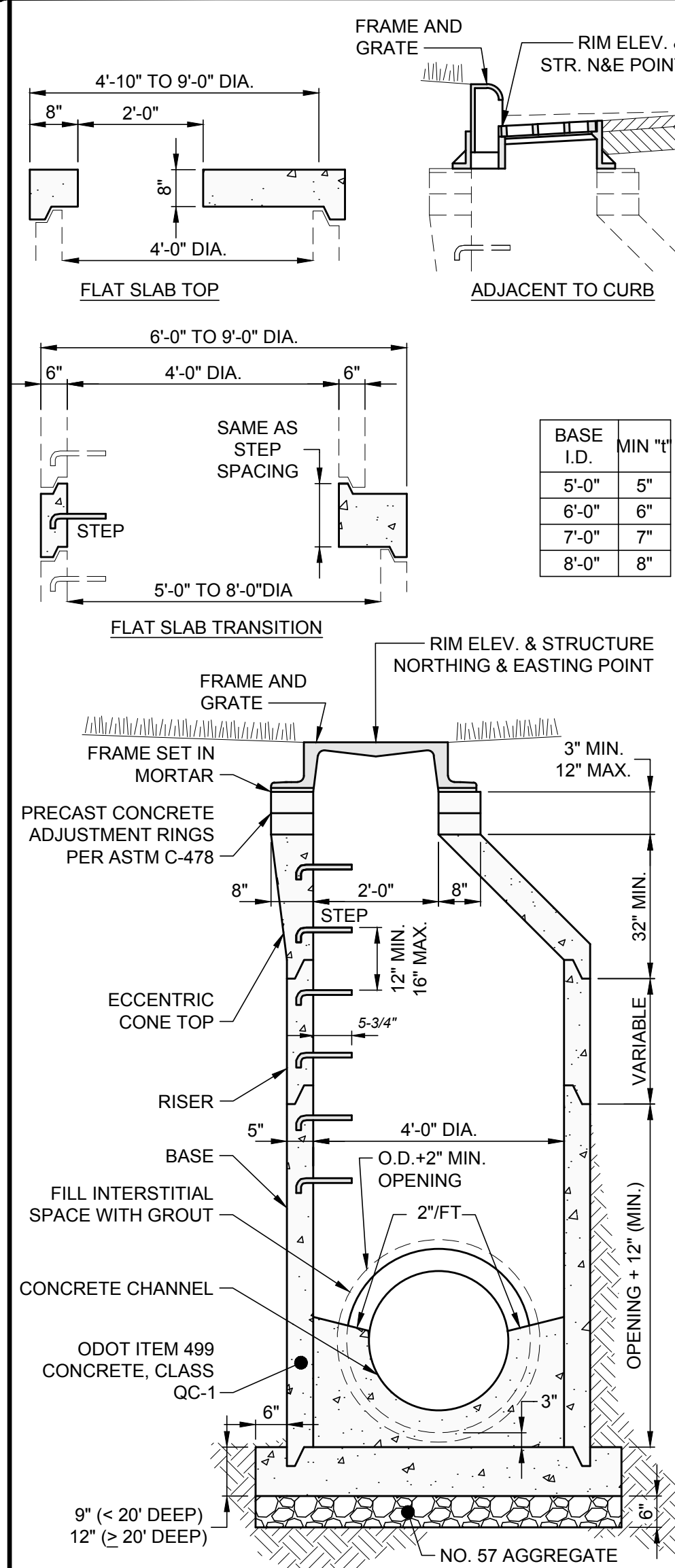


DATE	REVISION	NO.	CD	ISSUED FOR:	ISSUE DATE:	SCALE:	DESIGNED BY:	DRAWN BY:	CHECKED BY:
					8/5/2019	AS SHOWN	LCH / GMS	GMS	LCH

LAKELAND TRANSFER CENTER  
LAKELAND COMMUNITY COLLEGE  
7601 CLOCKTOWER DR., KIRTLAND, OH 44094

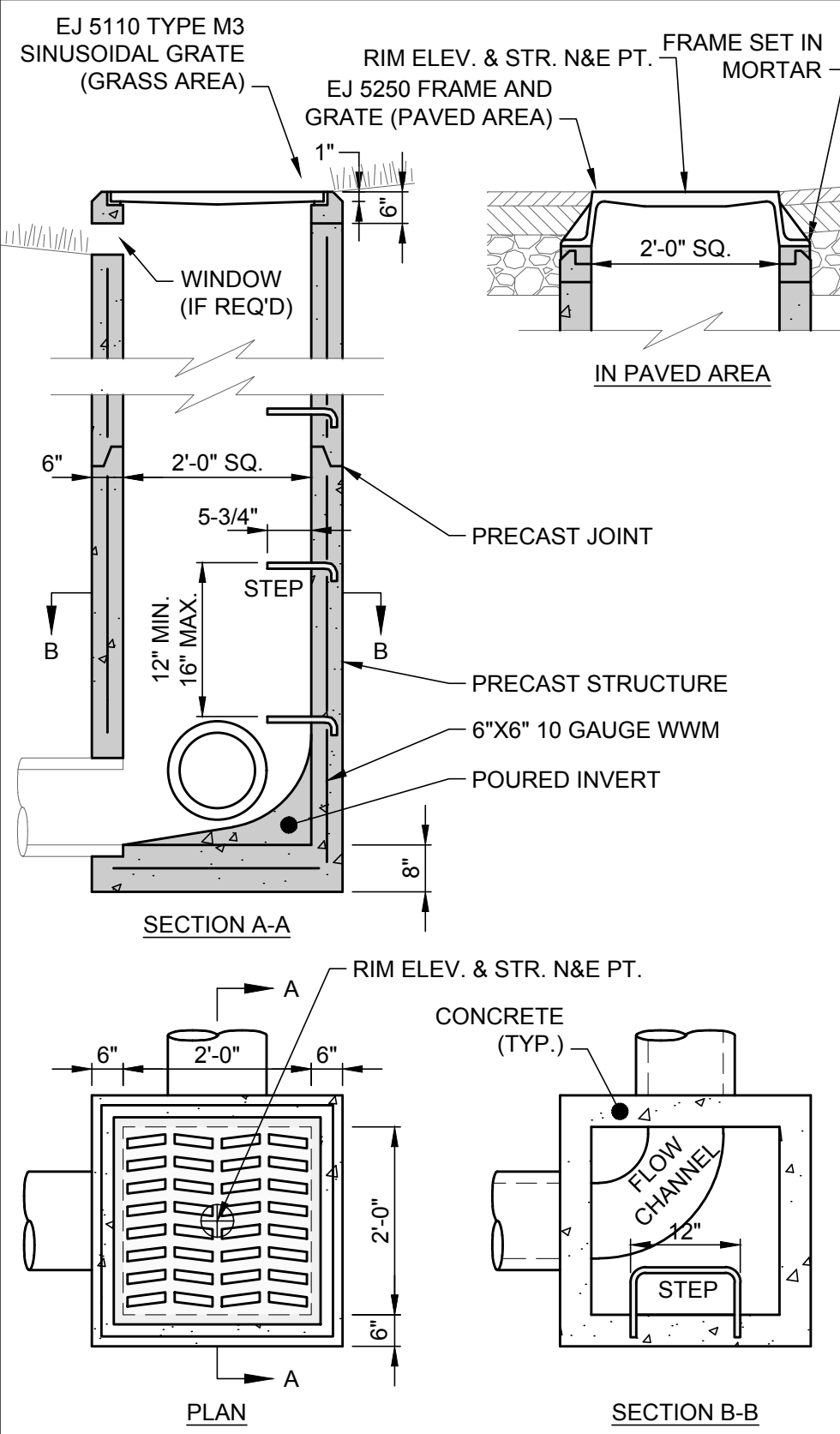
CONSTRUCTION DETAILS  
WATERMAIN & SERVICE

PROJECT NO.	18050002
DISCIPLINE	CIVIL
SHEET NAME	DT_3
SHEET	OF
19	55

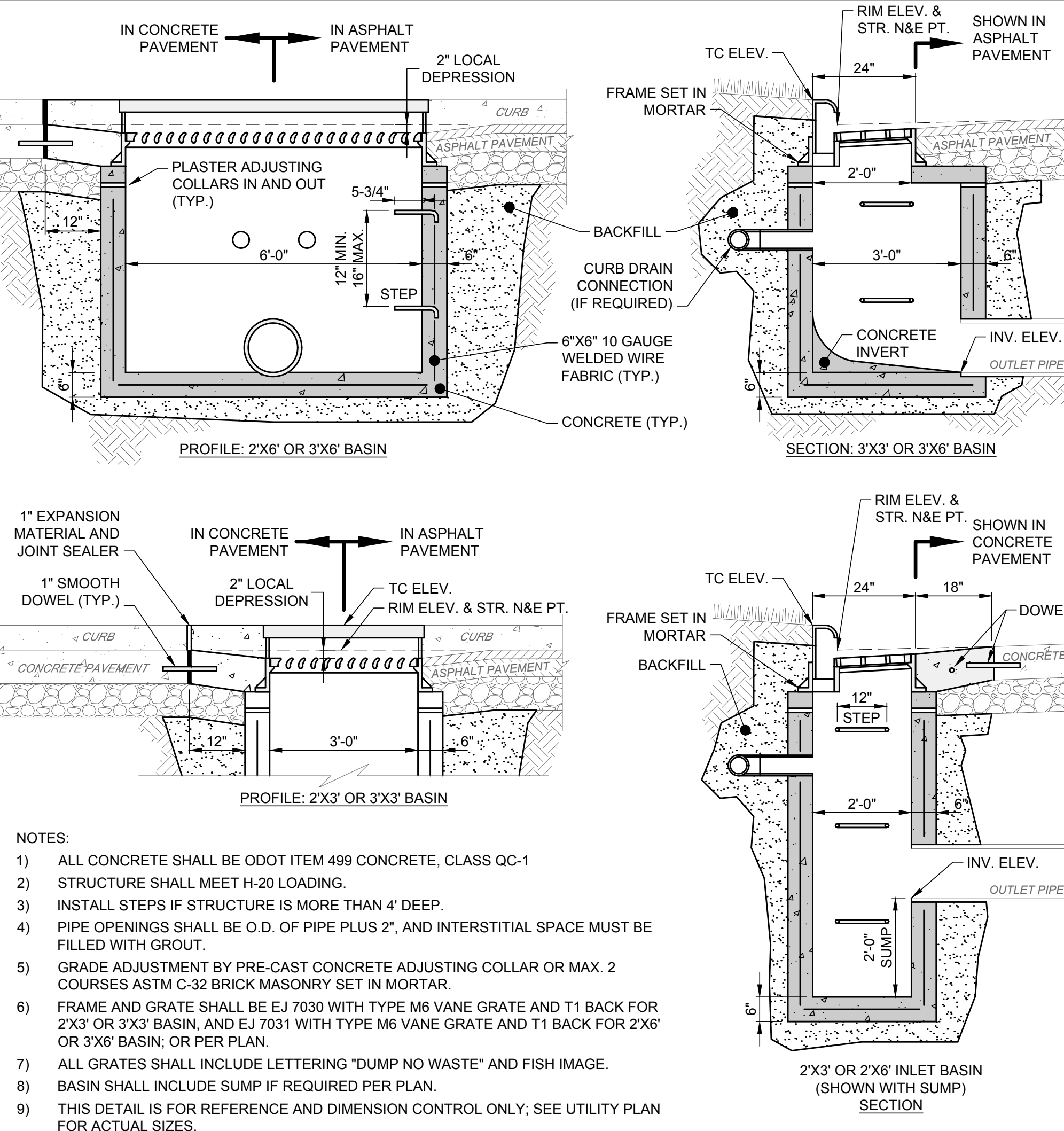
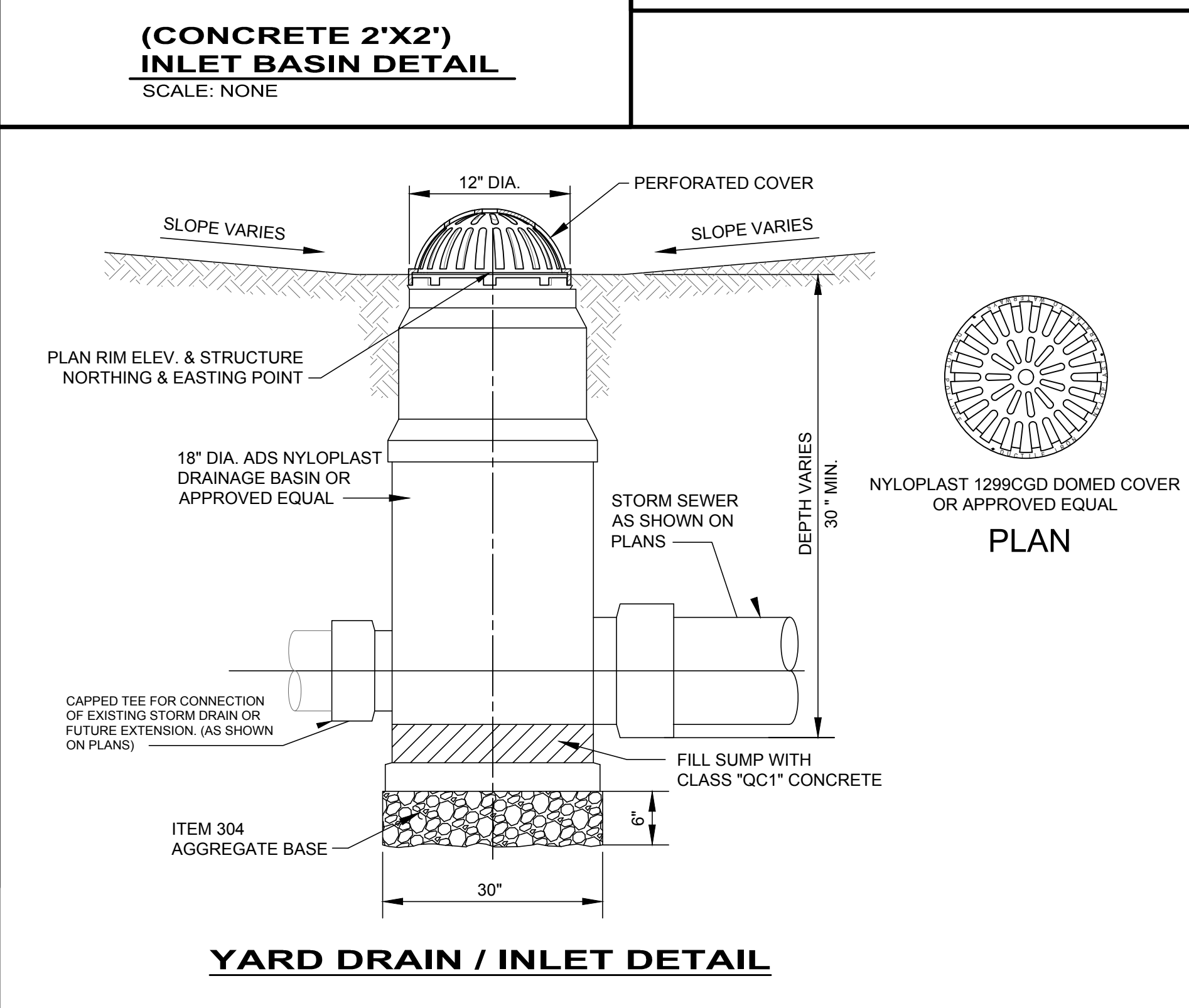


- PRE-CAST CONCRETE MANHOLE (STORM) DETAIL**  
SCALE: NONE
- NOTES:
- STRUCTURE TO MEET H-20 LOADING.
  - PRE-CAST CONCRETE SECTIONS SHALL BE MANUFACTURED AND FURNISHED WITH LIFT HOLES.
  - TOP, TRANSITION AND REDUCER SECTIONS MAY BE ECCENTRIC CONE, CONCENTRIC CONE OR FLAT SLAB.
  - BASE FOR MANHOLE IS SHOWN WITH MONOLITHIC FLOOR AND RISER WHICH MAY BE CAST IN ONE OR TWO OPERATIONS. AN ALTERNATE IS TO CAST AND SHIP THE FLOOR AND BARREL SEPARATELY. PROVIDE OPENINGS FOR PIPES WHEN THE UNIT IS CAST. BOTTOM CHANNEL MAY BE PRE-CAST IN THE BASE OR FORMED DURING FIELD CONSTRUCTION.
  - OPENINGS IN RISER SECTIONS FOR 18" AND SMALLER PIPES TO BE PREFABRICATED. PROVIDE FLEXIBLE CONNECTIONS ("Z" LOCK, INSERT A-TEE, OR APPROVED EQUAL) FOR ALL PIPES.
  - JOINT SEAL BETWEEN PRE-CAST MANHOLE SECTIONS TO BE RESILIENT AND FLEXIBLE GASKET JOINTS PER ODOT ITEM 706.11.
  - PRE-CAST CONCRETE SHALL BE REINFORCED PER ASTM C-478.
  - USE REINFORCED PLASTIC MANHOLE STEPS.
  - FIRST STEP SHALL NOT BE THAN 2'-0" BELOW TOP OF FRAME. MAKE PROJECTION 3-1/2" IF IN 24" DIA. SECTION.
  - USE FRAME AND GRATE EJ 1040 W/TYP B VENTED COVER IN PAVEMENT, EJ 1040 W/TYP N OVAL GRATE IN GRASS, EJ 7000 W/TYP M2 SINUSOIDAL GRATE AND T1 BACK IN PAVEMENT ADJACENT TO CURB, OR PER PLAN.

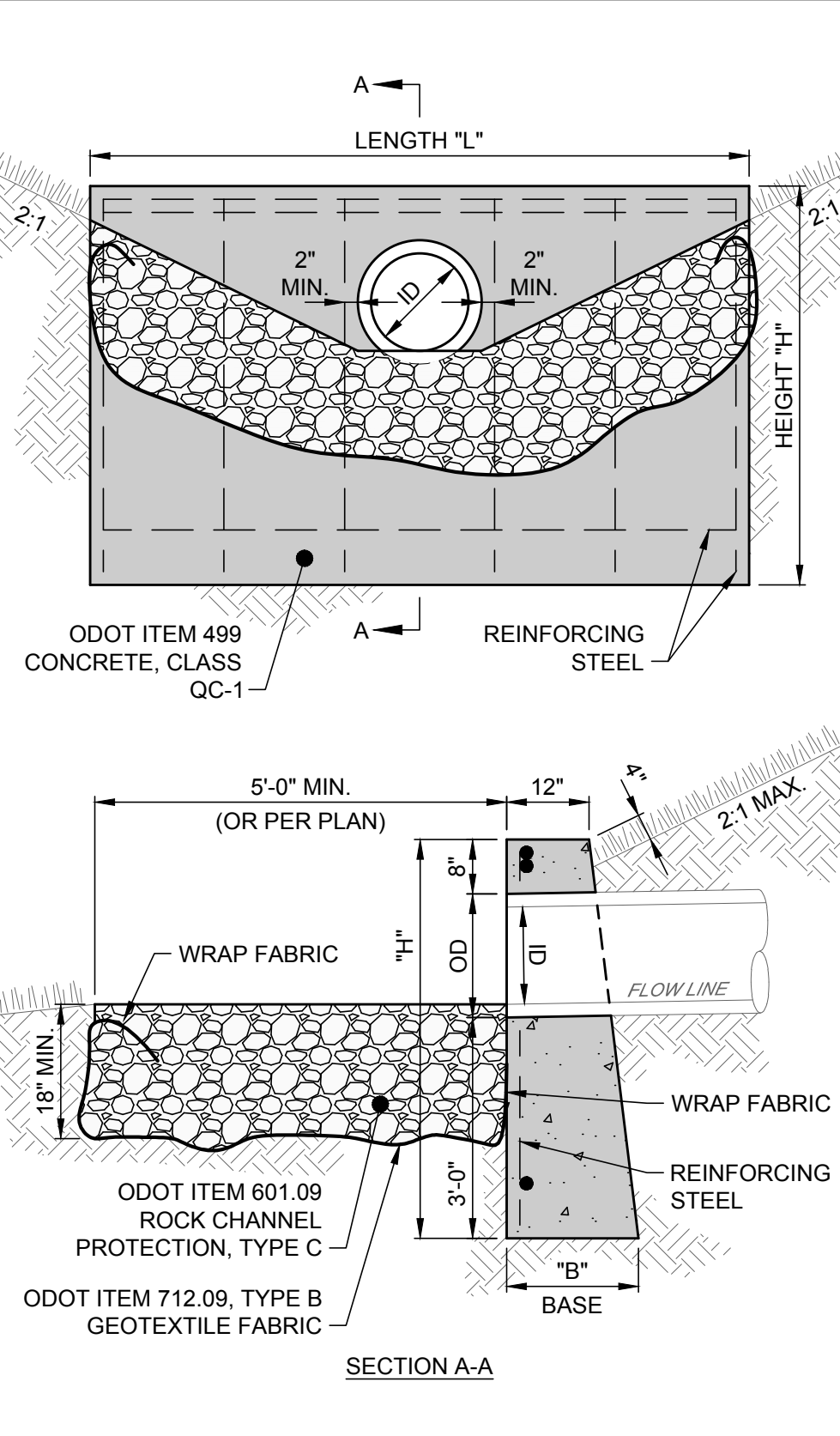
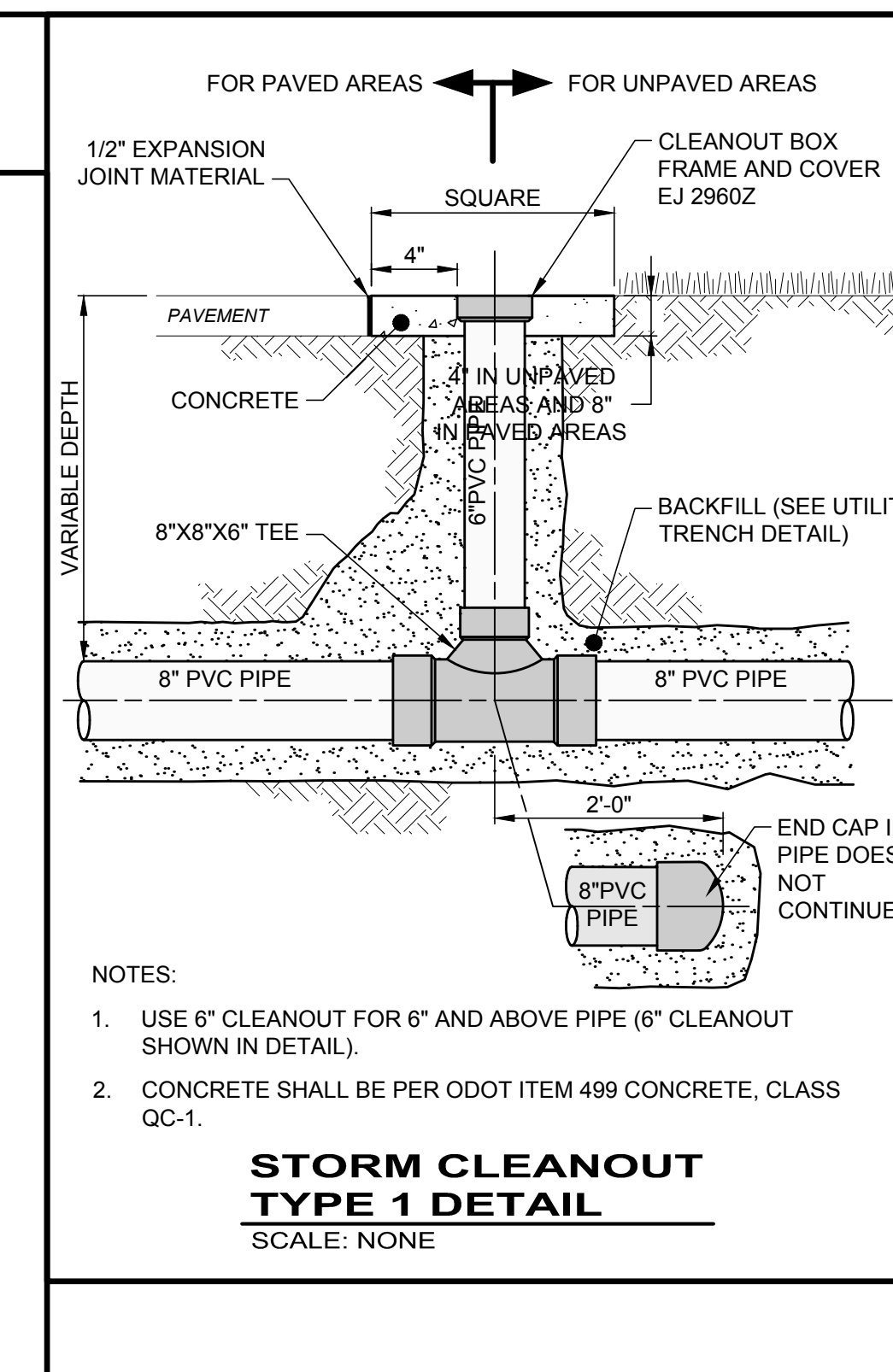
BASE I.D.	MIN "H"
5'-0"	5"
6'-0"	6"
7'-0"	7"
8'-0"	8"



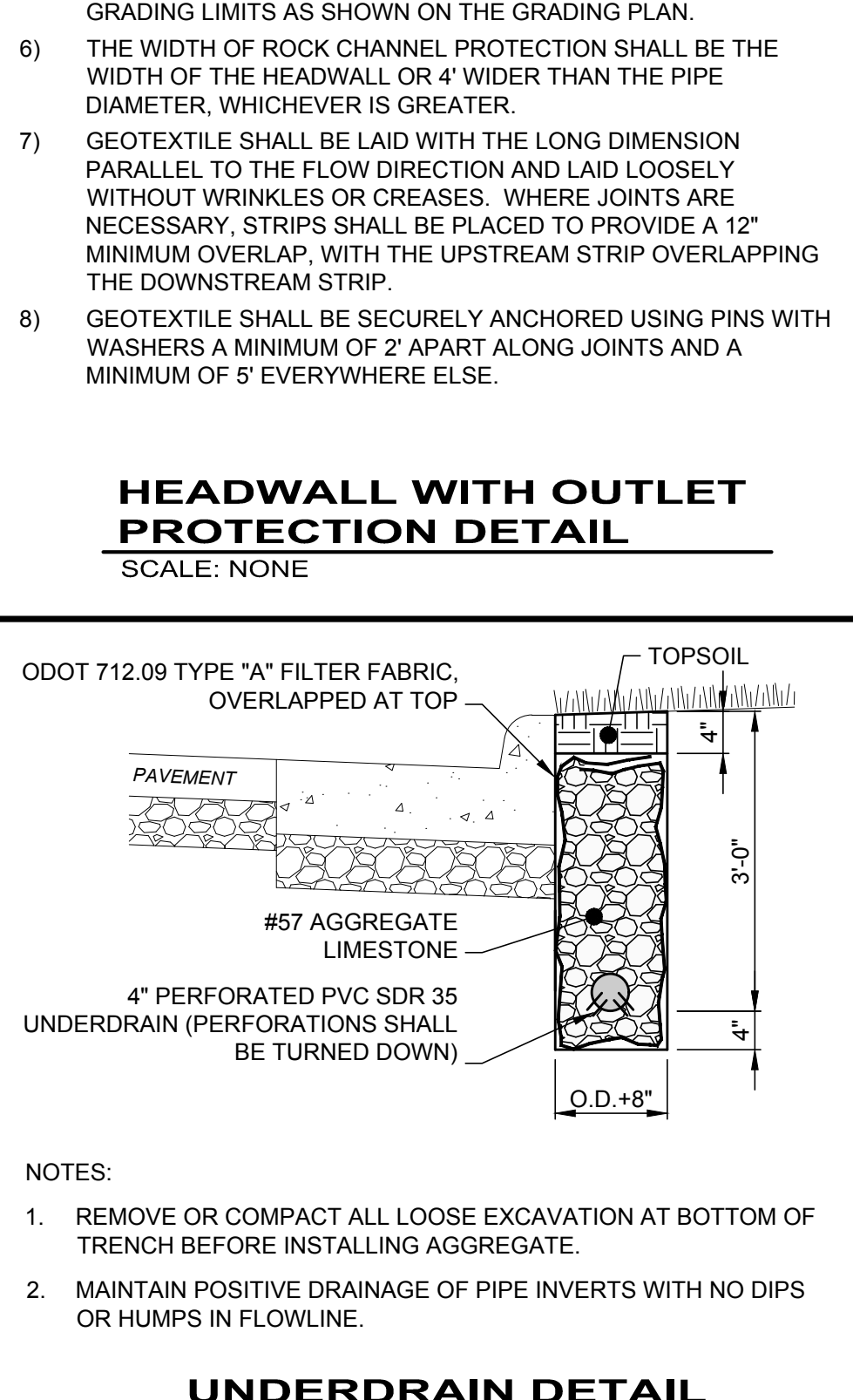
- (CONCRETE 2'X2') INLET BASIN DETAIL**  
SCALE: NONE
- NOTES:
- ALL CONCRETE SHALL BE ODOT ITEM 499 CONCRETE, CLASS QC-1
  - STRUCTURE SHALL MEET H-20 LOADING.
  - INSTALL STEPS IF STRUCTURE IS MORE THAN 4' DEEP.
  - PRECAST KNOCKOUT SIDES FOR CURB DRAIN, PIPE CONNECTION HOLES AND WINDOWS, AS REQUIRED. PIPE OPENINGS SHALL BE O.D. OF PIPE PLUS 2", AND INTERSTITIAL SPACE FILLED WITH GROUT.
  - GRADE ADJUSTMENT BY PRE-CAST CONCRETE ADJUSTING COLLAR OR MAX. 2 COURSES ASTM C-32 BRICK MASONRY SET IN MORTAR.
  - ALL GRATES SHALL INCLUDE LETTERING "DUMP NO WASTE" AND FISH IMAGE.
  - BASIN SHALL INCLUDE SUMP IF REQUIRED PER PLAN.
  - THIS DETAIL IS FOR REFERENCE AND DIMENSION CONTROL ONLY; SEE UTILITY PLAN FOR ACTUAL SIZES.



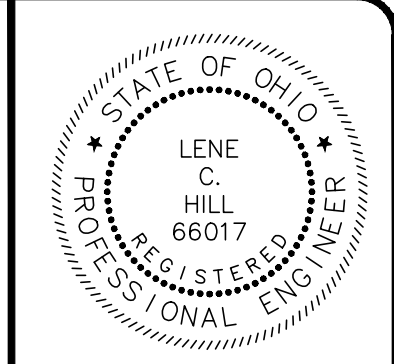
- (CONCRETE 2'X3', 3'X3', 2'X6' AND 3'X6') CURB INLET BASIN DETAIL**  
SCALE: NONE
- NOTES:
- ALL CONCRETE SHALL BE ODOT ITEM 499 CONCRETE, CLASS QC-1
  - STRUCTURE SHALL MEET H-20 LOADING.
  - INSTALL STEPS IF STRUCTURE IS MORE THAN 4' DEEP.
  - PIPE OPENINGS SHALL BE O.D. OF PIPE PLUS 2", AND INTERSTITIAL SPACE MUST BE FILLED WITH GROUT.
  - GRADE ADJUSTMENT BY PRE-CAST CONCRETE ADJUSTING COLLAR OR MAX. 2 COURSES ASTM C-32 BRICK MASONRY SET IN MORTAR.
  - FRAME AND GRATE SHALL BE EJ 7030 WITH TYPE M6 VANE GRATE AND T1 BACK FOR 2'X3' OR 3'X3' BASIN, AND EJ 7031 WITH TYPE M6 VANE GRATE AND T1 BACK FOR 2'X6' OR 3'X6' BASIN; OR PER PLAN.
  - ALL GRATES SHALL INCLUDE LETTERING "DUMP NO WASTE" AND FISH IMAGE.
  - BASIN SHALL INCLUDE SUMP IF REQUIRED PER PLAN.
  - THIS DETAIL IS FOR REFERENCE AND DIMENSION CONTROL ONLY; SEE UTILITY PLAN FOR ACTUAL SIZES.



- HEADWALL WITH OUTLET PROTECTION DETAIL**  
SCALE: NONE
- NOTES:
- THE HEADWALL BASE SHALL BE INCREASED BY 12" IF SOIL BEARING CAPACITY IS LESS THAN 2,600 PSF.
  - IF THE HEADWALL IS PRECAST, THE PIPE OPENING SHALL BE THE PIPE OD PLUS 2", AND INTERSTITIAL SPACE FILLED WITH GROUT.
  - REINFORCING TO BE NO. 5 BARS 18" O.C., MAX OF 24".
  - ALL EXPOSED CORNERS SHALL BE CHAMFERED 3/4".
  - ROCK CHANNEL PROTECTION SHALL CONFORM TO THE GRADING LIMITS AS SHOWN ON THE GRADING PLAN.
  - THE WIDTH OF ROCK CHANNEL PROTECTION SHALL BE THE WIDTH OF THE HEADWALL OR 4' WIDER THAN THE PIPE DIAMETER, WHICHEVER IS GREATER.
  - GEOTEXTILE SHALL BE LAID WITH THE LONG DIMENSION PARALLEL TO THE FLOW DIRECTION AND LAID LOOSELY WITHOUT WRINKLES OR CREASES. WHERE JOINTS ARE NECESSARY, STRIPS SHALL BE PLACED TO PROVIDE A 12" MINIMUM OVERLAP, WITH THE UPSTREAM STRIP OVERLAPPING THE DOWNSTREAM STRIP.
  - GEOTEXTILE SHALL BE SECURELY ANCHORED USING PINS WITH WASHERS A MINIMUM OF 2' APART ALONG JOINTS AND A MINIMUM OF 5' EVERYWHERE ELSE.



- NOTES:
- REMOVE OR COMPACT ALL LOOSE EXCAVATION AT BOTTOM OF TRENCH BEFORE INSTALLING AGGREGATE.
  - MAINTAIN POSITIVE DRAINAGE OF PIPE INVERTS WITH NO DIPS OR HUMPS IN FLOWLINE.

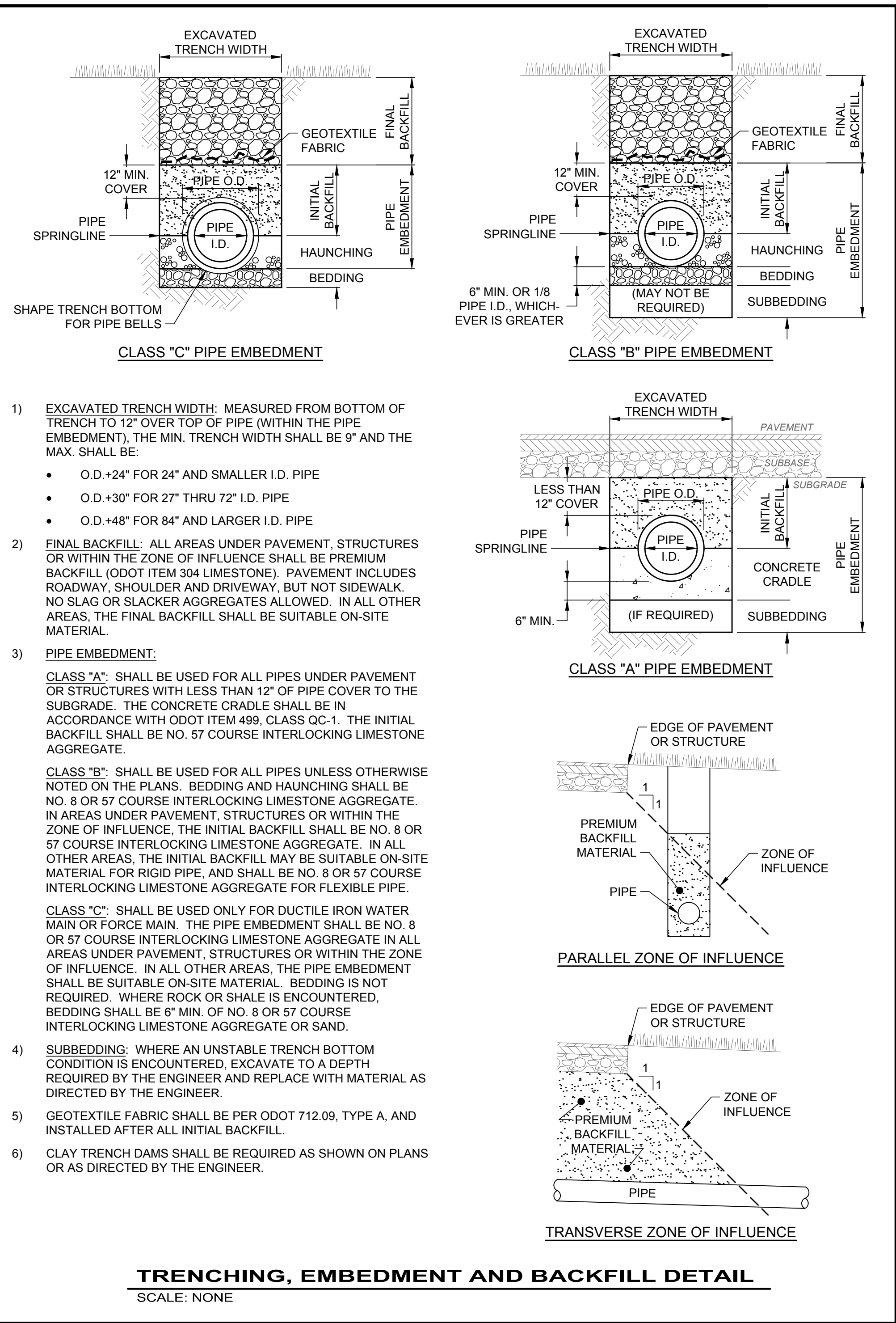


DATE	REVISION	NO	CD	ISSUED FOR:	ISSUE DATE:	SCALE:	DESIGNED BY:	DRAWN BY:	CHECKED BY:
			8/5/2019	AS SHOWN	8/5/2019	LCH / GMS		GMS	LCH

**LAKELAND TRANSFER CENTER**  
LAKELAND COMMUNITY COLLEGE  
7601 CLOCKTOWER DR., KIRTLAND, OH 44094

**CONSTRUCTION DETAILS**  
STORM SEWER

PROJECT NO.	18050002
DISCIPLINE	CIVIL
SHEET NAME	DT_4
SHEET	OF
20	55

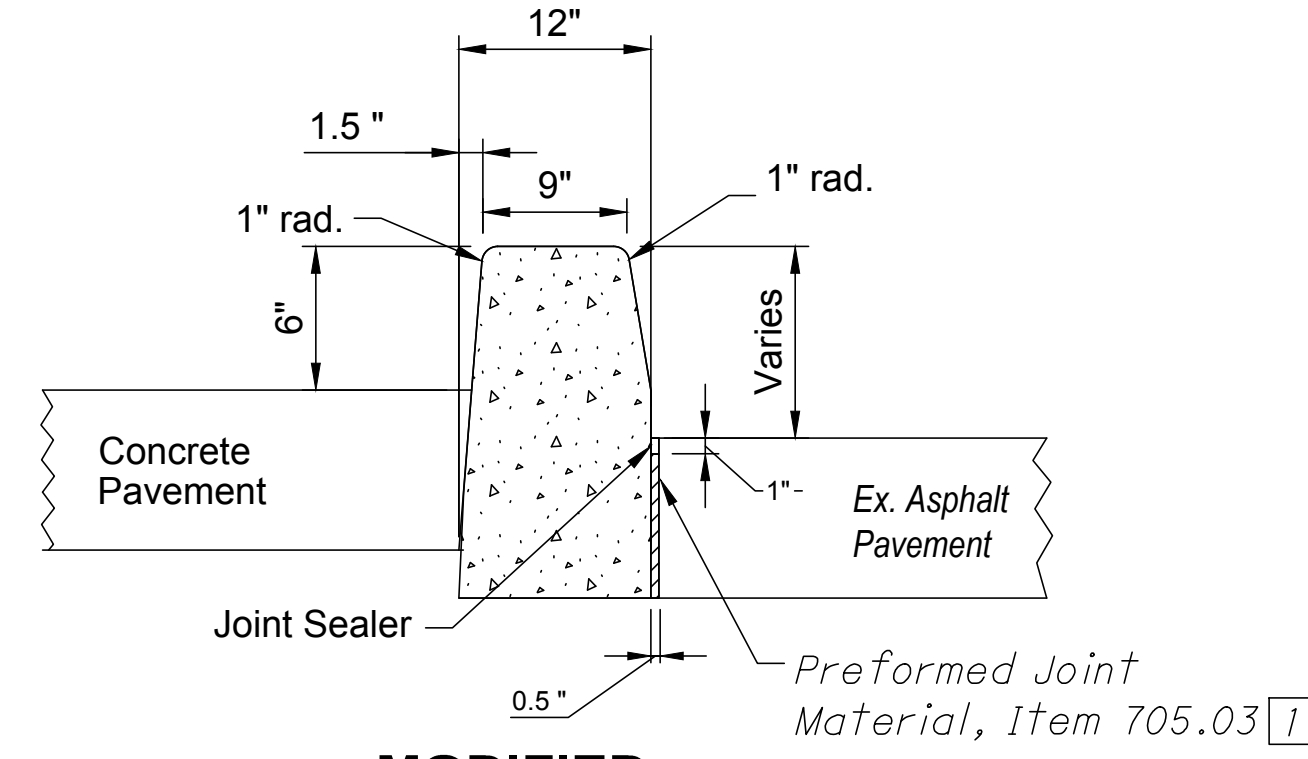
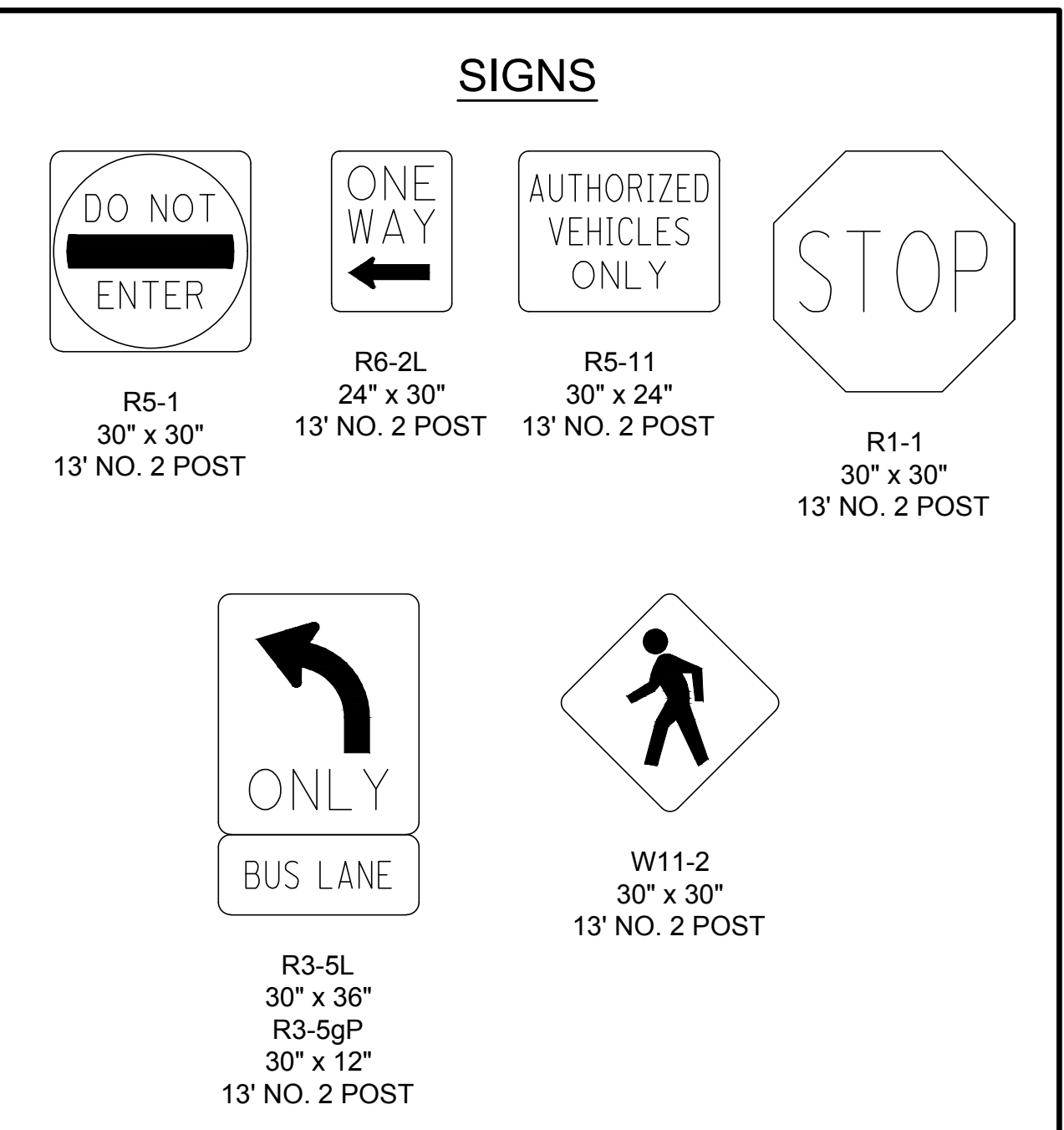


- EXCAVATED TRENCH WIDTH:** MEASURED FROM BOTTOM OF TRENCH TO 12" OVER TOP OF PIPE (WITHIN THE PIPE EMBEDMENT), THE MIN. TRENCH WIDTH SHALL BE 9" AND THE MAX. SHALL BE:
  - O.D.+24" FOR 24" AND SMALLER I.D. PIPE
  - O.D.+30" FOR 27" THRU 72" I.D. PIPE
  - O.D.+48" FOR 84" AND LARGER I.D. PIPE
- FINAL BACKFILL:** ALL AREAS UNDER PAVEMENT, STRUCTURES OR WITHIN THE ZONE OF INFLUENCE SHALL BE PREMIUM BACKFILL (ODOT ITEM 304 LIMESTONE). PAVEMENT INCLUDES ROADWAY, SHOULDER AND DRIVEWAY, BUT NOT SIDEWALK. NO SLAG OR SLACKER AGGREGATES ALLOWED. IN ALL OTHER AREAS, THE FINAL BACKFILL SHALL BE SUITABLE ON-SITE MATERIAL.
- PIPE EMBEDMENT:**

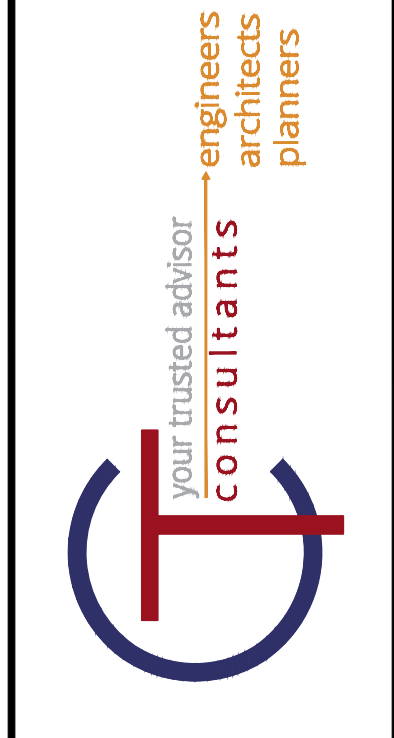
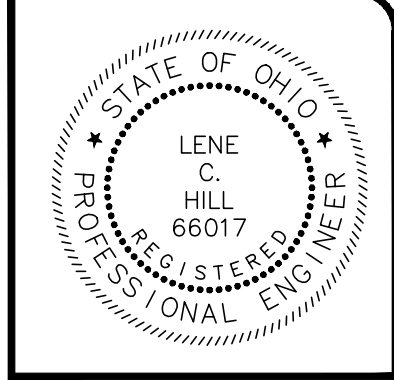
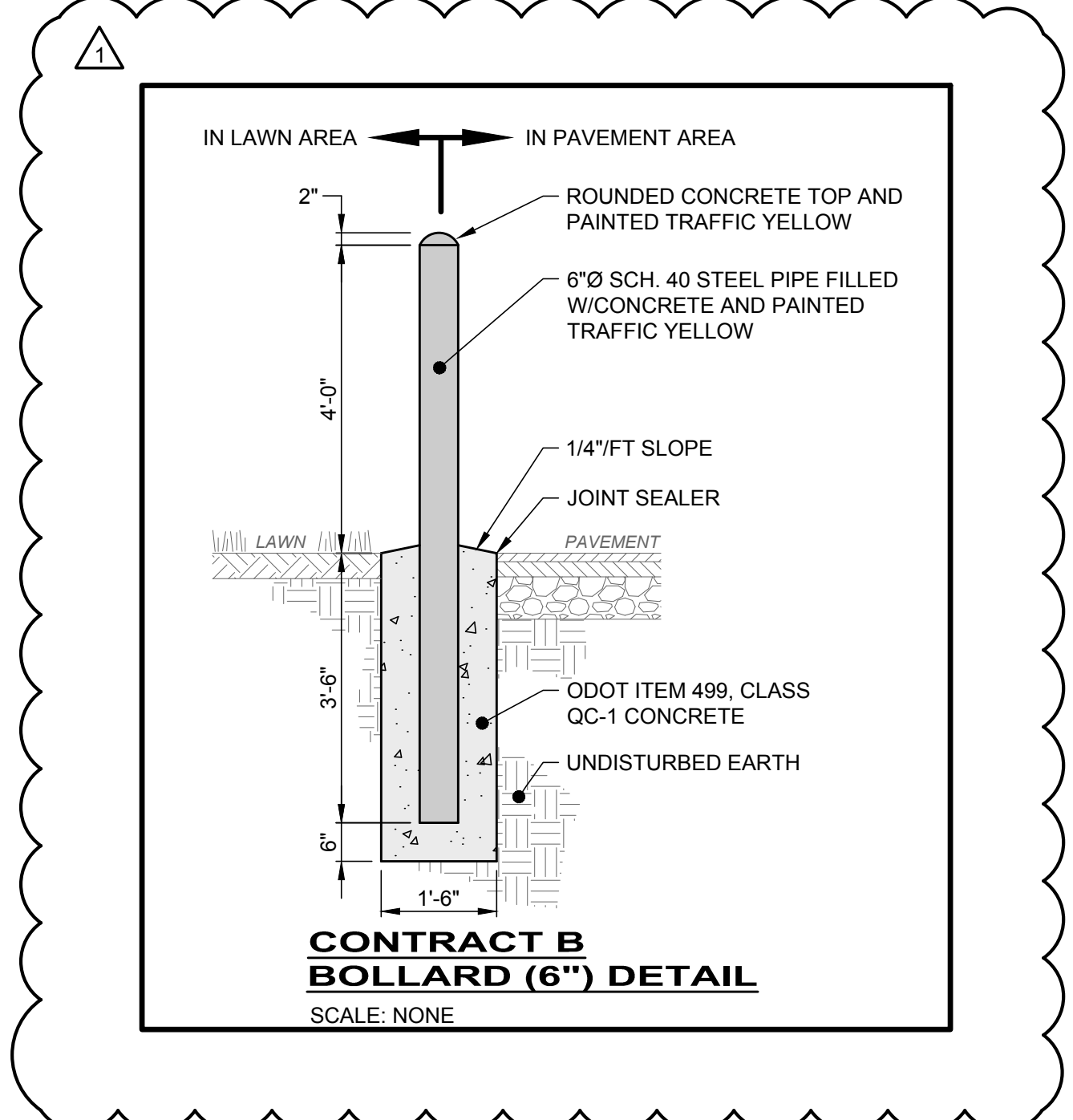
CLASS "A": SHALL BE USED FOR ALL PIPES UNDER PAVEMENT OR STRUCTURES WITH LESS THAN 12" OF PIPE COVER TO THE SUBGRADE. THE CONCRETE CRADLE SHALL BE IN ACCORDANCE WITH ODOT ITEM 499, CLASS QC-1. THE INITIAL BACKFILL SHALL BE NO. 57 COURSE INTERLOCKING LIMESTONE AGGREGATE.

CLASS "B": SHALL BE USED FOR ALL PIPES UNLESS OTHERWISE NOTED ON THE PLANS. BEDDING AND HAUNCHING SHALL BE NO. 8 OR 57 COURSE INTERLOCKING LIMESTONE AGGREGATE. IN AREAS UNDER PAVEMENT, STRUCTURES OR WITHIN THE ZONE OF INFLUENCE, THE INITIAL BACKFILL SHALL BE NO. 8 OR 57 COURSE INTERLOCKING LIMESTONE AGGREGATE. IN ALL OTHER AREAS, THE INITIAL BACKFILL MAY BE SUITABLE ON-SITE MATERIAL FOR RIGID PIPE, AND SHALL BE NO. 8 OR 57 COURSE INTERLOCKING LIMESTONE AGGREGATE FOR FLEXIBLE PIPE.

CLASS "C": SHALL BE USED ONLY FOR DUCTILE IRON WATER MAIN OR FORCE MAIN. THE PIPE EMBEDMENT SHALL BE NO. 8 OR 57 COURSE INTERLOCKING LIMESTONE AGGREGATE IN ALL AREAS UNDER PAVEMENT, STRUCTURES OR WITHIN THE ZONE OF INFLUENCE. IN ALL OTHER AREAS, THE PIPE EMBEDMENT SHALL BE SUITABLE ON-SITE MATERIAL. BEDDING IS NOT REQUIRED. WHERE ROCK OR SHALE IS ENCOUNTERED, BEDDING SHALL BE 6" MIN. OF NO. 8 OR 57 COURSE INTERLOCKING LIMESTONE AGGREGATE OR SAND.
- SUBBEDDING:** WHERE AN UNSTABLE TRENCH BOTTOM CONDITION IS ENCOUNTERED, EXCAVATE TO A DEPTH REQUIRED BY THE ENGINEER AND REPLACE WITH MATERIAL AS DIRECTED BY THE ENGINEER.
- GEOTEXTILE FABRIC** SHALL BE PER ODOT 712.09, TYPE A, AND INSTALLED AFTER ALL INITIAL BACKFILL.
- CLAY TRENCH DAMS** SHALL BE REQUIRED AS SHOWN ON PLANS OR AS DIRECTED BY THE ENGINEER.



EXPANSION JOINT MATERIAL AND JOINT SEALER ARE NOT REQUIRED FOR THE PORTION OF THE CURB THAT IS ADJACENT TO A FLEXIBLE PAVEMENT TYPE. BOTH MATERIALS ARE REQUIRED, AS DETAILED, FOR THE FULL HEIGHT OF RIGID PAVEMENT AND CONCRETE BASES.

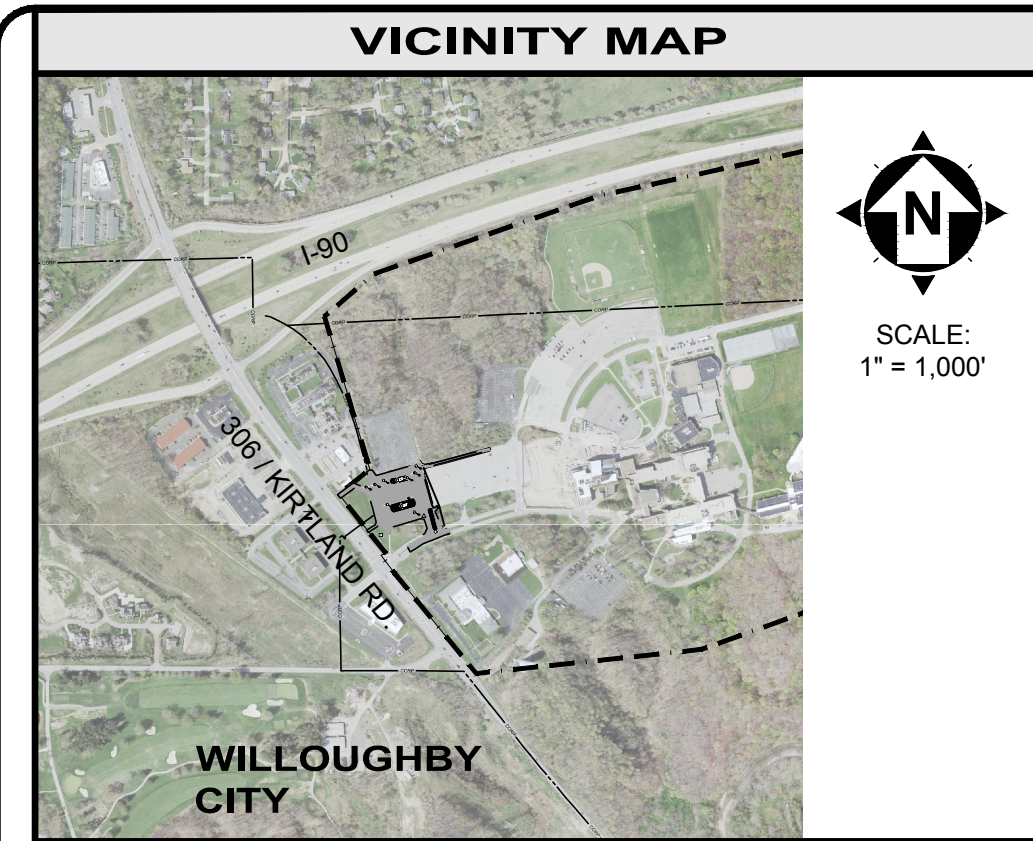


ISSUED FOR:	CD	NO.	REVISION	DATE
AS SHOWN	8/5/2019	1		8/05/2019
DESIGNED BY:	LCH/GMS			
DRAWN BY:	GMS			
CHECKED BY:	LCH			

**LAKELAND TRANSFER CENTER**  
LAKELAND COMMUNITY COLLEGE  
7601 CLOCKTOWER DR., KIRTLAND, OH 44094

**CONSTRUCTION DETAILS**  
MISC.

PROJECT NO.	18050002
DISCIPLINE	CIVIL
SHEET NAME	DT_5
SHEET	21
OF	55



SCALE:  
1" = 1,000'

**SITE INFORMATION**

PROJECT INFORMATION:  
CLOCKTOWER DRIVE  
CITY OF KIRTLAND, LAKE COUNTY, OHIO 44094  
LATITUDE: 41.6378 LONGITUDE: -81.3702

OWNER INFORMATION:  
LAKETRAH  
555 LAKESHORE BLVD., PAINESVILLE TOWNSHIP, OHIO 44077  
CONTACT: ADMINISTRATIVE OFFICE  
PHONE: 440-350-1000

SITE-CIVIL ENGINEER INFORMATION:  
CT CONSULTANTS, INC.  
8150 STERLING COURT  
MENTOR, OHIO 44060  
CONTACT: LENE H HILL, P.E.  
PHONE: 440-951-9000

TYPE OF CONSTRUCTION:  
 NEW  MAINTENANCE  REDEVELOPMENT

TYPE OF PROJECT:  
 RETAIL  COMMUNITY  MIXED USE  
 OFFICE  RECREATION  RESIDENTIAL  
 MEDICAL  PUBLIC SAFETY  RESTAURANT  
 UTILITY  EDUCATION  APARTMENT  
 ROAD  INDUSTRIAL  MANUFACTURING

DESCRIPTION OF PROJECT:  
DEMOLISH EXISTING PARKING LOT. CONSTRUCTION OF A NEW INTERMODAL TRANSIT BUILDING WITH DRIVEWAYS, PARKING, UTILITIES, STORM WATER MANAGEMENT SYSTEM AND LANDSCAPING. CONNECT ENTRANCE, RE-ROUTE EX. STORM SEWER AND ADD NEW STORM SEWERS WITH CATCH BASINS. ADD STORM WATER QUALITY BMP.

SOIL DISTURBING ACTIVITIES INCLUDE: EROSION AND SEDIMENT CONTROL INSTALLATION; REMOVAL OF TREES, VEGETATION, TOPSOIL, BUILDING FOUNDATIONS, UTILITIES AND SOIL BENEATH PAVEMENT SUBBASE; EARTHWORK GRADING; AND INSTALLATION OF NEW BUILDING, STORM WATER MANAGEMENT SYSTEM, UTILITIES, STORMWATER BMP AND NEW PAVEMENT.

DESCRIPTION OF PRIOR LAND USE:  
ASPHALT PARKING LOT WITH STORM CULVERT. CONCRETE SIDEWALK, & UNDEVELOPED LAND WITH VEGETATION AND BRUSH.

SITE AREA INFORMATION:  
TOTAL PROPERTY AREA: 231.9 AC.  
PROJECT LIMIT/CONSTRUCTION AREA: 4.16 AC.  
AREA OF SOIL DISTURBANCE: 2.55 AC.  
EXISTING IMPERVIOUS AREA: 1.61 AC.  
PROPOSED IMPERVIOUS AREA: 1.47 AC.  
INCREASE/DECREASE OF IMPERVIOUS AREA: -3.37 %  
PRE-CONSTRUCTION RUNOFF COEFFICIENT: 0.71  
POST-CONSTRUCTION RUNOFF COEFFICIENT: 0.65

NAME OF RECEIVING STREAM, SURFACE WATER OR MS4:  
WARD CREEK

QUALITY OF STORM WATER DISCHARGE FROM SITE:  
UNKNOWN

ESTIMATED CONSTRUCTION START DATE: 08/01/2019  
ESTIMATED CONSTRUCTION COMPLETION DATE: 05/31/2020

**EROSION CONTROL TIMETABLE**

STABILIZATION	2019												2020												
	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	
TEMP. SEEDING					⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗					⊗	⊗	⊗						
PERM. SEEDING					⊗	⊗	⊗	⊗	⊗	⊗	⊗														
SODDING					⊗	⊗	⊗	⊗	⊗	⊗	⊗						⊗	⊗	⊗						
MULCHING		⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	
PAVING																								⊗	

⊗ IRRIGATION NEEDED

**SOIL TYPES**

NAME	DESCRIPTION	
PsB	Plateau silt loam, 2 to 6% slopes	86.4%
PeD2	Pierpont silt loam, 12 to 18% slopes, eroded	13.6%

**GENERAL NOTES**

- THIS SWP3 HAS BEEN PREPARED SHOWING THE ITEMS LISTED BELOW, BUT THE CONTRACTOR MAY NEED TO MOVE OR ADD ITEMS AS CONSTRUCTION PROGRESSES OR DURING THE VARIOUS STAGES OF CONSTRUCTION. OR THE CONTRACTOR IS REQUIRED TO DEVELOP THE SWP3 FOR THIS PROJECT AND SUBMIT FOR APPROVAL TO THE SWCD SHOWING THE ITEMS LISTED BELOW. SOME ITEMS MAY ALREADY BE SHOWN ON THE SWP3, BUT MOVED TO BETTER SUIT THE CONTRACTOR'S MEANS AND METHODS.
  - LIMITS OF EARTH DISTURBING ACTIVITY
  - CONSTRUCTION ENTRANCE(S)
  - EROSION AND SEDIMENT CONTROL MEASURES
  - INLET PROTECTIONS
  - CONCRETE WASHOUT PIT(S)
  - EQUIPMENT STAGING
  - FUEL STORAGE AND VEHICLE FUELING AREA
  - CONSTRUCTION TRAILER(S)
  - SANITATION FACILITY
  - MATERIAL STOCKPILE LOCATION(S)
  - CHEMICAL COMPOUND MIXING AND STORAGE AREA
  - ANY OTHER EROSION CONTROL REQUIRED
- ALL WORK REQUIRED TO IMPLEMENT THE SWP3 INCLUDING INSPECTION FEES, MAINTENANCE AND REPAIRS SHALL BE DONE BY AND AT THE EXPENSE OF THE CONTRACTOR.
- THE CONTRACTOR SHALL AMEND THE SWP3 WHEN THERE IS A CHANGE IN DESIGN, CONSTRUCTION, OPERATION OR MAINTENANCE THAT REQUIRES INSTALLATION OF BMPS OR MODIFICATION TO EXISTING BMPS.
- ADDITIONAL OR DIFFERENT BMPS MAY BE NEEDED AS CONSTRUCTION PROGRESSES OR AS REQUIRED BY THE OWNER, SWCD OR OHIO EPA.
- PHASE CONSTRUCTION ACTIVITIES TO MINIMIZE LAND DISTURBED AT ANY ONE TIME AND LEAVE EXISTING VEGETATION IN PLACE AS LONG AS POSSIBLE.

**ADMINISTRATIVE NOTES**

- AN OHIO EPA NPDES PERMIT IS REQUIRED WHERE CONSTRUCTION ACTIVITIES DISTURB 1 OR MORE ACRES OF LAND, OR SMALLER SITES LESS THAN 1 ACRE THAT ARE PART OF A LARGER COMMON DEVELOPMENT. DISTURBED LAND IS LAND IN WHICH VEGETATION HAS BEEN CLEARED AND SOILS ARE EXPOSED TO STORM WATER. A NOI IS REQUIRED FOR THIS PROJECT AND MUST BE FILED WITH THE OHIO EPA AT LEAST 21 DAYS PRIOR TO THE START OF CONSTRUCTION BECAUSE THE TOTAL LAND DISTURBANCE IS GREATER THAN 1 ACRE \_\_\_\_ OR \_\_\_\_ A NOI IS NOT REQUIRED FOR THIS PROJECT BECAUSE THE TOTAL LAND DISTURBANCE IS LESS THAN 1 ACRE AND IS NOT PART OF A LARGER COMMON DEVELOPMENT.
- THE CONTRACTOR SHALL FOLLOW THE PRACTICES AND REQUIREMENTS PROVIDED IN THE OHIO EPA NPDES CONSTRUCTION SITE STORM WATER GENERAL PERMIT OH000004 AND THE ODNr RAINWATER AND LAND DEVELOPMENT MANUAL, AND BE RESPONSIBLE FOR ALL NPDES TERMS AND CONDITIONS UNTIL A NOT IS FILED.
- NO CONSTRUCTION ACTIVITIES MAY BEGIN UNTIL ALL OF THE FOLLOWING OCCUR:
  - OHIO EPA NPDES AUTHORIZATION LETTER RECEIVED
  - THE CONTRACTOR FILES A CO-PERMITTEE APPLICATION TO THE OHIO EPA
  - THE CONTRACTOR ATTENDS A PRE-CONSTRUCTION MEETING WITH THE SWCD TO DISCUSS OHIO EPA NPDES PERMIT REQUIREMENTS
- ELECTRONIC VERSIONS OF OHIO EPA FORMS INCLUDING NOI, NOT, CO-PERMITTEE NOI/NOT, INDIVIDUAL LOT NOI/NOT AND TRANSFER ARE AVAILABLE THROUGH THE OHIO EPA AND CAN BE SUBMITTED ELECTRONICALLY. VISIT THE OHIO EPA ELECTRONIC BUSINESS SERVICES WEBSITE AT WWW.EPA.OHIO.GOV/DSW/STORM/INDEX FOR MORE INFORMATION AND GUIDANCE.
- THE CONTRACTOR SHALL SELECT INDIVIDUALS TO BE RESPONSIBLE FOR INSPECTIONS, MAINTENANCE AND REPAIR ACTIVITIES, AND COMPLETING INSPECTION AND MAINTENANCE REPORTS. THE CONTRACTOR SHALL COMPLETE A "DELEGATION OF AUTHORITY FOR STORM WATER POLLUTION PREVENTION PLAN" AND PROVIDE A COPY TO THE OWNER AND SWCD.
- THE CONTRACTOR SHALL HAVE SUBCONTRACTORS THAT ARE ENGAGED IN ACTIVITIES THAT COULD IMPACT STORM WATER COMPLETE A "SUBCONTRACTOR AGREEMENT FOR EROSION AND SEDIMENT CONTROL", AND THEN PROVIDE A COPY TO THE OWNER AND SWCD.
- THE CONTRACTOR SHALL KEEP ON-SITE COPIES OF THE NOI, NPDES, SWP3 AND INSPECTION LOGS/REPORTS.
- ALL EROSION AND SEDIMENT CONTROL WORK SHALL BE SUBJECT TO INSPECTION BY THE SWCD AND OHIO EPA.

**EROSION CONTROL NOTES**

- SPECIAL MEASURES SHALL BE TAKEN TO STABILIZE DRAINAGE CHANNELS AND STORM WATER OUTFALLS.
- DIVERT SURFACE RUNOFF AWAY FROM DISTURBED AREAS AND STEEP SLOPES WHEREVER PRACTICABLE.
- STABILIZATION OF DISTURBED AREAS SHALL BE INITIATED WITHIN THE TIME FRAMES IN THE FOLLOWING TABLES:

AREA REQUIRING TEMPORARY STABILIZATION	TIME FRAME TO APPLY CONTROLS
AREA WITHIN 50 FEET OF A SURFACE WATER, NOT AT FINAL GRADE AND TO REMAIN IDLE MORE THAN 14 DAYS	WITHIN 2 DAYS OF MOST RECENT DISTURBANCE
ANY OTHER AREA TO BE DORMANT MORE THAN 14 DAYS, BUT LESS THAN 1 YEAR	WITHIN 7 DAYS OF MOST RECENT DISTURBANCE
AREA TO REMAIN IDLE OVER WINTER	PRIOR TO ONSET OF WINTER WEATHER
AREA TO BE PAVED	STABILIZE WITH STONE SUBBASE UNTIL PAVED

AREA REQUIRING PERMANENT STABILIZATION	TIME FRAME TO APPLY CONTROLS
AREA TO BE DORMANT FOR 1 YEAR OR MORE	WITHIN 7 DAYS OF MOST RECENT DISTURBANCE
AREA WITHIN 50 FEET OF A SURFACE WATER AND AT FINAL GRADE	WITHIN 2 DAYS OF REACHING FINAL GRADE
ANY OTHER AREA AT FINAL GRADE	WITHIN 7 DAYS OF REACHING FINAL GRADE

**SEDIMENT CONTROL NOTES**

- INLET PROTECTION AND SEDIMENT BARRIERS MUST BE INSTALLED PRIOR TO CLEARING AND GRUBBING.
- PERIMETER SEDIMENT BARRIERS SHALL BE INSTALLED AS THE FIRST STEP OF GRADING AND WITHIN 7 DAYS FROM THE START OF CLEARING AND GRUBBING.
- SEDIMENT PONDS, TEMPORARILY MODIFIED PERMANENT PONDS AND PERIMETER SEDIMENT BARRIERS MUST BE INSTALLED AS THE FIRST STEP OF GRADING AND WITHIN 7 DAYS FROM THE START OF CLEARING AND GRUBBING, AND CONTINUE TO FUNCTION UNTIL ALL DISTURBED UPLAND AREAS ARE STABILIZED.
- SEDIMENT CONTROLS MUST POND RUNOFF TO BE CONSIDERED FUNCTIONAL.
- SEDIMENT-LADEN TRENCH OR GROUND WATER MUST PASS THROUGH A SEDIMENT-SETTLING POND OR BE DEWATERED IN-PLACE USING A SUMP PIT, FILTER BAG OR OTHER COMPARABLE METHOD, PRIOR TO DISCHARGE FROM THE SITE.
- TRENCH AND GROUND WATER FREE FROM SEDIMENT OR OTHER POLLUTANTS MAY BE DISCHARGED WITHOUT TREATMENT, PROVIDED THIS WATER DOES NOT BECOME POLLUTANT-LADEN BY TRAVERSING OVER DISTURBED SOILS OR OTHER POLLUTANT SOURCES.
- SETTLED MATERIAL SHALL BE DISPOSED OF IN A STABILIZED LOCATION WHERE IT WILL NOT BE CARRIED OFF-SITE OR INTO A STORM SEWER BY RAINFALL.

**OTHER WASTE CONTROL NOTES**

- SOIL STOCKPILES SHALL BE RINGED WITH SILT FENCE ALONG THE BOTTOM FOOTPRINT. IF THE STOCKPILE WILL BE INACTIVE FOR 14 DAYS OR MORE, THE SURFACE SHALL BE SEEDED OR STABILIZED WITHIN 7 DAYS OF LAST DISTURBANCE.
- CONCRETE TRUCKS ARE NOT PERMITTED TO WASH OUT OR DISCHARGE SURPLUS CONCRETE OR DRUM WASH WATER ONTO THE GROUND OR INTO STORM INLETS, DITCHES, STREAMS, WETLANDS OR ANY OTHER SURFACE WATERS. ALL EXCESS CONCRETE AND CONCRETE WASHOUT, INCLUDING FROM HAND MIXERS AND LIGHT EQUIPMENT, MUST BE DISPOSED OF IN A CONCRETE WASHOUT AREA TO COLLECT AND HARDEN.
- OFF-SITE TRACKING OF SEDIMENT BY CONSTRUCTION VEHICLES MUST BE MINIMIZED. THE CONTRACTOR SHALL SWEEP ALL ADJACENT ROADS TO REMOVE MUD, DIRT OR ROCK TRACKED FROM THE SITE AT THE END OF EACH WORK DAY OR AS REQUIRED DURING THE DAY. DUMP TRUCKS HAULING MATERIAL FROM THE SITE SHALL BE COVERED WITH A TARPULIN.
- IT IS PROHIBITED TO BURN, BURY OR POUR ONTO THE GROUND OR INTO STORM INLETS, DITCHES, STREAMS, WETLANDS OR ANY OTHER SURFACE WATERS SOLID OR LIQUID WASTE INCLUDING TRASH, CONSTRUCTION DEBRIS, SOLVENTS, PAINT, DIESEL FUEL, GASOLINE, MOTOR OIL, HYDRAULIC FLUID, CEMENT CURING COMPOUND, ANTIFREEZE OR OTHER TOXIC OR HAZARDOUS WASTE. WASTE MATERIALS SHALL BE COLLECTED IN A SECURELY LIDDED DUMPSTER, DISPOSED OF IN AN APPROVED LANDFILL AND EMPTIED AS NECESSARY.
- FUEL TANKS, DRUMS AND OTHER CONTAINERS HOLDING CHEMICALS MUST BE STORED WITHIN A DIKED AREA WITH A VOLUME OF AT LEAST 110% OF THE LARGEST TANK. A DIKED AREA IS NOT NECESSARY IF A SELF-CONTAINED SPILL PROOF TANK IS USED.
- THE CONTRACTOR SHALL PROVIDE TEMPORARY SANITARY FACILITIES AT THE SITE. SANITARY WASTE SHALL BE COLLECTED FROM THE PORTABLE UNITS 1 TIME PER WEEK, OR MORE OFTEN IF NECESSARY.
- ANY TOXIC OR HAZARDOUS MATERIAL SPILL, REGARDLESS OF SIZE, MUST BE REPORTED WITHIN 30 MINUTES TO THE LOCAL FIRE DEPARTMENT AND OHIO EPA.
- CONTAMINATED SOIL, SOIL WHERE CONSTRUCTION CHEMICALS HAVE BEEN SPILLED OR HAZARDOUS WASTE MATERIALS MUST BE REMOVED FROM THE SITE AND DISPOSED OF IN ACCORDANCE WITH FEDERAL, STATE AND LOCAL REGULATIONS.
- STORM WATER THAT COMES IN CONTACT WITH CONTAMINATED SOIL OR HAS A VISIBLE SHEEN MUST BE COLLECTED BY A VACUUM TRUCK AND DISPOSED OF AS A WASTE WATER.

**TMDLS AND BMPS SELECTED**

- APPLICABLE TMDLS FOR THE SITE:  
 PHOSPHORUS  AMMONIA  HABITAT  
 NITROGEN  BACTERIA  FLOW  
 SEDIMENT/TOTAL SUSPEND SOLIDS  
 DISSOLVED OXYGEN/ORGANIC ENRICHMENT  
 THE FOLLOWING BMPS ARE SELECTED TO ADDRESS APPLICABLE TMDLS FOR THE PROJECT:  
  
 CONSTRUCTION SITE:  
 DEMARCATÉ PROTECTED AREA BEFORE CONSTRUCTION  
 MAINTAIN PORTABLE TOILET AND EMPTY W/OUT SPILL  
 PROPER STORAGE OF LANDSCAPE FERTILIZER  
 MS4 MONTHLY INSPECTIONS DURING CONSTRUCTION  
 RESOLVE NON-COMPLIANCE SWP3 INSPECTION ITEMS  
 FINAL INSPECTION TO ENSURE BMP IMPLEMENTATION  
  
 TEMPORARY EROSION CONTROL:  
 CHECK DAMS  TEMPORARY DIVERSION  
 SLOPE DRAIN  STREAM UTILITY CROSSING  
 DEWATERING  STREAM CROSSING  
  
 TEMPORARY SEDIMENT CONTROL:  
 SEDIMENT BASIN  SEDIMENT TRAP  
 SILT FENCE  INLET PROTECTION  
 FILTER SOCK  FILTER BERM  
  
 SOIL STABILIZATION:  
 DUST CONTROL  PHASED DISTURBANCE  
 MULCHING  CLEARING AND GRUBBING  
 SODDING  TEMPORARY SEEDING  
 TOPSOILING  PERMANENT SEEDING  
 GRADE TREATMENT  CONSTRUCTION ENTRANCE  
 TEMPORARY ROLLED EROSION CONTROL PRODUCTS  
 TURF REINFORCEMENT MATTING  
 TREE AND NATURAL AREA PRESERVATION  
  
 PERMANENT EROSION CONTROL:  
 GRAVEL SWALE  ROCK LINED CHANNEL  
 LEVEL SPREADER  ROCK OUTLET PROTECTION  
 DIVERSION  SUBSURFACE DRAIN  
  
 POLLUTION PREVENTION AND GOOD HOUSEKEEPING:  
 ROUTINE FACILITY INSPECTIONS  
 VISUAL ASSESSMENT OF STORM WATER DISCHARGE  
 ANNUAL COMPREHENSIVE SITE INSPECTION  
 SWEEP PARKING LOT AND DRIVE LANES  
 CLEAN CATCH BASINS  
 STORE WASTE IN LIDDED CONTAINERS  
 LOCATE SNOW DISPOSAL AREAS AWAY FROM BMPS  
 ESTABLISH "PICK-UP PET WASTE" STATION  
  
 POST-CONSTRUCTION:  
 WETLAND SETBACK  STREAM SETBACK  
 WATER QUALITY POND  PERMEABLE PAVEMENT  
 GRASS FILTER STRIP  INFILTRATION TRENCH  
 TREE BOX FILTER  SAND FILTER  
 GREEN ROOF  LTMA  
 BIORETENTION AREA  CISTERN  
 BIORETENTION WITH INTERNAL WATER STORAGE  
 OPEN CHANNEL SWALES  
 WET EXTENDED DETENTION BASIN  
 DRY EXTENDED DETENTION BASIN WITH FOREBAY  
 RETROFIT SWMF TO TREAT WCV  
 RETROFIT SWMF TO INCREASE INFILTRATION  
 RETROFIT SWMF POND TO FUNCTION AS WETLAND  
 AS-BUILT POST-BMPs  
 SUBMIT LTMA ANNUAL MAINTENANCE REPORT TO MS4  
 REDUCE IMPERVIOUS SURFACES  
 DECREASE QUANTITY OF PARKING SPACES  
 LOW IMPACT DEVELOPMENT  
 CONSERVATION DEVELOPMENT  
 DISCONNECT DOWNSPOUT AND REDIRECT TO BMP  
 VEGETATE MAINTENANCE/STORAGE YARD OPEN AREAS  
 IMPLEMENT LOW-MOW OR NO-MOW PRACTICES  
 PEST MANAGEMENT PROGRAM

**PERMIT CLOSURE REQUIREMENTS**

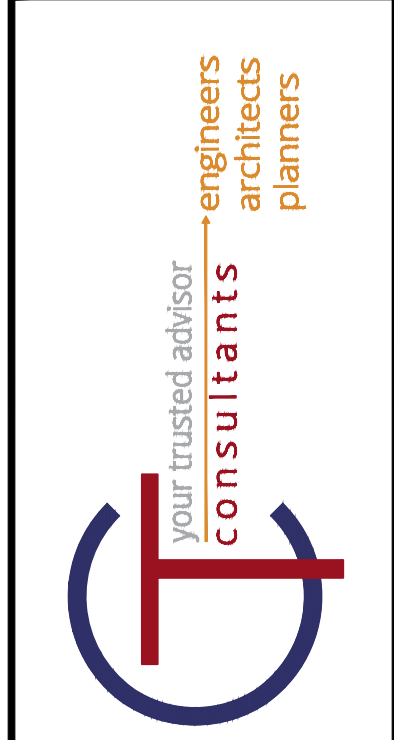
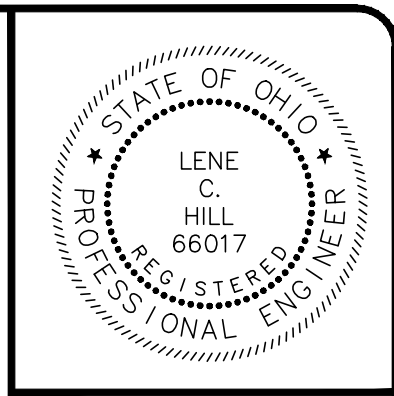
- FINAL STABILIZATION REQUIRES THE CONTRACTOR TO REMOVE ALL TEMPORARY SEDIMENT AND EROSION CONTROLS FROM THE SITE AND ALL SEDIMENT TRAPPED BY THOSE CONTROLS BE PERMANENTLY STABILIZED.
- THE CONTRACTOR SHALL COMPLETE A "FINAL CERTIFICATION AND NOTIFICATION FOR EROSION AND SEDIMENT CONTROL" UPON PROJECT COMPLETION AND PROVIDE A COPY TO THE OWNER AND SWCD.
- ONCE CONSTRUCTION ACTIVITIES HAVE CEASED AND THE SITE REACHES FINAL STABILIZATION, THE CONTRACTOR MUST TERMINATE THE NPDES PERMIT COVERAGE BY FILING A NOT WITH THE OHIO EPA WITHIN 45 DAYS OF FINAL STABILIZATION. FINAL STABILIZATION IS DEFINED AS AN ESTABLISHED VEGETATIVE GROUND COVER OF AT LEAST 70% GROWTH DENSITY, OR OTHER MEANS OF PERMANENT STABILIZATION, OVER ALL AREAS DISTURBED DURING CONSTRUCTION.
- THE CONTRACTOR MUST MAINTAIN ALL REPORTS FOR 3 YEARS AFTER THE NOT IS FILED, AND PROVIDE DIGITAL COPIES TO THE OWNER AND SWCD.

**MAINTENANCE REQUIREMENTS**

- BMPs SHALL BE MAINTAINED IN GOOD WORKING ORDER UNTIL UPSLOPE AREAS THEY CONTROL ARE STABILIZED.
- THE CONTRACTOR SHALL PROVIDE A QUALIFIED PERSON KNOWLEDGEABLE IN THE PRINCIPLES AND PRACTICES OF EROSION AND SEDIMENT CONTROLS, POSSESS THE TECHNICAL SKILLS TO ASSESS SITE CONDITIONS THAT COULD IMPACT STORM WATER QUALITY, AND CAN ASSESS THE EFFECTIVENESS OF ANY BMP SELECTED.
- A QUALIFIED PERSON MUST INSPECT BMPs AT LEAST ONCE EVERY 7 DAYS AND WITHIN 24 HOURS OF A 0.5" OR GREATER RAINFALL IN A 24-HOUR PERIOD TO DETERMINE IF THE SWP3 WAS PROPERLY IMPLEMENTED.
- THE QUALIFIED PERSON MUST PREPARE A WRITTEN REPORT AFTER EACH INSPECTION SUMMARIZING INSPECTION RESULTS INCLUDING THE FOLLOWING:
  - DATE OF INSPECTION
  - NAME AND QUALIFICATION OF THE INSPECTOR
  - WEATHER CONDITIONS
  - LOCATIONS WHERE IN-STREAM OR OFF-SITE SEDIMENTATION OR OTHER POLLUTANTS WERE OBSERVED.
  - LOCATIONS OF BMPs NEEDING MAINTENANCE.
  - LOCATIONS OF BMPs FAILING TO OPERATE CORRECTLY OR PROVIDE ADEQUATE PROTECTION.
  - LOCATION OF AREAS IN NEED OF ADDITIONAL BMPs NOT IN PLACE AT THE TIME OF INSPECTION.
  - CORRECTIVE ACTIONS REQUIRED, CHANGES TO THE SWP3 AND IMPLEMENTATION DATES.
  - GRADING AND STABILIZATION ACTIVITY LOG
  - EROSION AND SEDIMENT CONTROL AMENDMENT LOG
- ALL INCIDENTS OF NON-COMPLIANCE MUST BE IDENTIFIED IN THE REPORT. IF A REPORT DOES NOT IDENTIFY INCIDENTS OF NON-COMPLIANCE, IT MUST CONTAIN A CERTIFICATION THE SITE IS IN COMPLIANCE AT THE TIME OF INSPECTION.
- BMP MAINTENANCE OR REPAIR MUST BE COMPLETED WITHIN 3 DAYS, AND SEDIMENT POND MAINTENANCE OR REPAIR WITHIN 10 DAYS, OF THE INSPECTION THAT REVEALED A DEFICIENCY.
- WHEN AN INSPECTION REVEALS A BMP IS NOT EFFECTIVE AND A MORE APPROPRIATE BMP IS REQUIRED, THE SWP3 SHALL BE AMENDED, THE NEW BMP INSTALLED WITHIN 10 DAYS OF THE INSPECTION THAT REVEALED THE DEFICIENCY, AND THE "STORM WATER POLLUTION PREVENTION PLAN AMENDMENT LOG" FORM COMPLETED.
- WHEN AN INSPECTION REVEALS A BMP HAS NOT BEEN INSTALLED, BUT IS REQUIRED TO PROVIDE ADEQUATE CONTROL, IT MUST BE INSTALLED PRIOR TO THE NEXT STORM EVENT WHICH PRODUCES RUNOFF, BUT IN NO CASE LATER THAN 10 DAYS FROM THE INSPECTION THAT REVEALED THE DEFICIENCY.
- THE INSPECTION FREQUENCY MAY BE REDUCED TO 1 TIME PER MONTH IF THE ENTIRE SITE IS TEMPORARILY STABILIZED OR RUNOFF IS UNLIKELY DUE TO WINTER WEATHER (I.E. SUSTAINED SNOW COVER OR FROZEN GROUND CONDITIONS). A WAIVER OF INSPECTION REQUIREMENTS IS AVAILABLE UNTIL 1 MONTH BEFORE THAWING CONDITIONS ARE EXPECTED IF ALL THE FOLLOWING CONDITIONS ARE MET:
  - FROZEN CONDITIONS ARE ANTICIPATED TO CONTINUE FOR EXTENDED PERIODS OF TIME (I.E. MORE THAN 1 MONTH).
  - SOIL DISTURBANCE ACTIVITIES HAVE BEEN SUSPENDED.
  - THE BEGINNING AND ENDING DATES OF THE WAIVER PERIOD ARE DOCUMENTED IN THE SWP3.
- ONCE A DEFINABLE AREA HAS BEEN FULLY STABILIZED, IT MAY BE MARKED ON THE SWP3 AND NO FURTHER INSPECTION REQUIREMENTS ARE REQUIRED FOR THAT AREA OF THE SITE.
- INSPECTIONS SHALL BE PERFORMED UNTIL A NOT IS FILED WITH THE OHIO EPA.

**SEQUENCE OF MAJOR CONSTRUCTION ACTIVITIES**

- HOLD A PRE-CONSTRUCTION MEETING TO DISCUSS OHIO EPA NPDES PERMIT REQUIREMENTS.
- CONTRACTOR SUBMITS CONSTRUCTION SCHEDULE FOR CONSTRUCTION ACTIVITIES.
- BEGIN INSPECTION, MAINTENANCE, RECORD KEEPING AND SITE POSTING OF BMPs.
- ESTABLISH STAGING AREA AND NON-SEDIMENT BMPs.
- INSTALL SILT FENCE, INLET PROTECTION AND CONSTRUCTION ENTRANCE.
- INSTALL OTHER TEMPORARY EROSION AND SEDIMENT CONTROL ITEMS AS SOON AS POSSIBLE, BUT NO LATER THAN 7 DAYS AFTER FIRST SOIL DISTURBANCE. INSPECT AND MAINTAIN BMPs FOR THE PROJECT DURATION UNTIL UPSLOPE AREAS ARE PERMANENTLY STABILIZED.
- BEGIN SITE DEMOLITION AND CONSTRUCTION.
- INSTALL DEWATERING MEASURES.
- BEGIN EARTHWORK OPERATIONS.
- APPLY TEMPORARY SEED.
- INSTALL STORM SEWERS AND INLETS.
- CONSTRUCT REMAINING UTILITIES INCLUDING SANITARY, WATER, ELECTRIC, GAS AND PHONE.
- INSTALL PAVING.
- INSPECT AND CLEAN EXISTING AND NEW STORM SEWERS AND INLETS.
- APPLY PERMANENT SEED.
- INSTALL LANDSCAPING.
- CONTINUE INSPECTIONS, MAINTENANCE, RECORD KEEPING, AND SITE POSTING UNTIL FINAL STABILIZATION ACHIEVED.
- REMOVE TEMPORARY BMPs FROM STORM SEWER AND INLETS, AND OPEN GUTTERS AND DITCHES TO OBTAIN FREE DRAINAGE.
- DISPOSE OF ALL DEBRIS AND WASTE MATERIAL.



DATE	NO	REVISION	CD	ISSUED FOR:	ISSUE DATE:	SCALE:	DESIGNED BY:	DRAWN BY:	CHECKED BY:
			8/5/2019	AS SHOWN	8/5/2019	AS SHOWN	LOH / GMS	GMS	LOH

**LAKELAND TRANSFER CENTER  
LAKELAND COMMUNITY COLLEGE  
7601 CLOCKTOWER DR., KIRTLAND, OH 44094**

**STORM WATER POLLUTION PREVENTION PLAN**

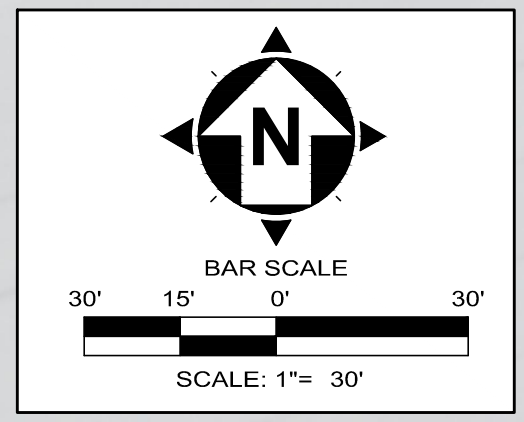
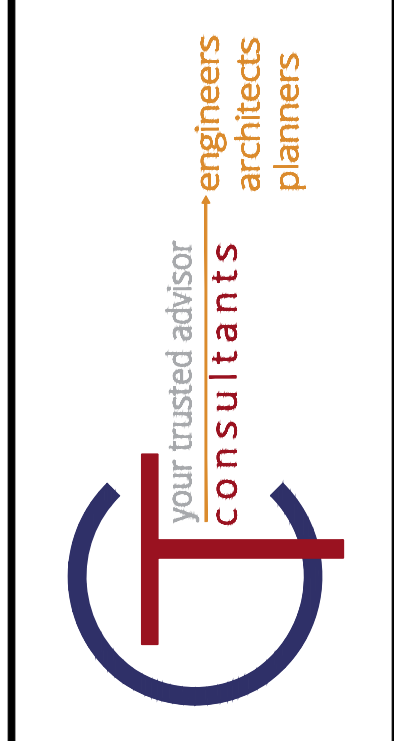
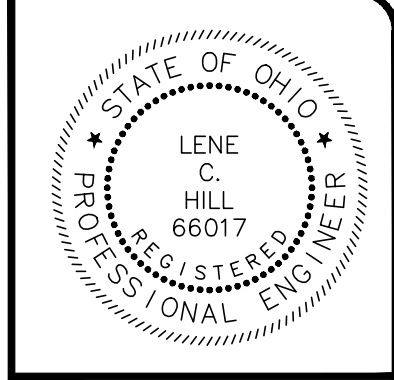
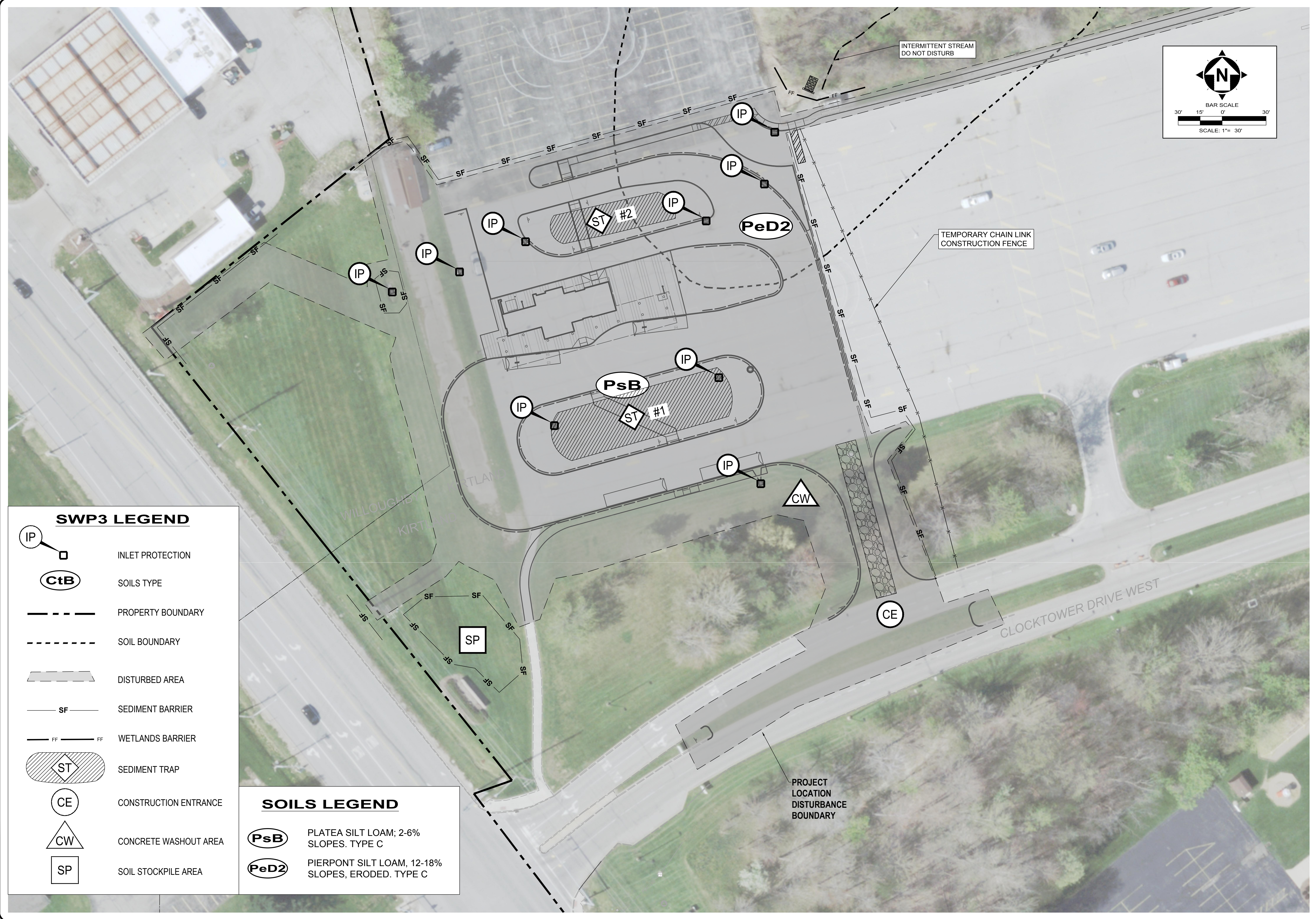
PROJECT NO.  
**18050002**

DISCIPLINE  
**CIVIL**

SHEET NAME  
**SWP\_01**

SHEET OF  
**22 55**

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**SWP3 LEGEND**

	INLET PROTECTION
	SOILS TYPE
	PROPERTY BOUNDARY
	SOIL BOUNDARY
	DISTURBED AREA
	SEDIMENT BARRIER
	WETLANDS BARRIER
	SEDIMENT TRAP
	CONSTRUCTION ENTRANCE
	CONCRETE WASHOUT AREA
	SOIL STOCKPILE AREA

**SOILS LEGEND**

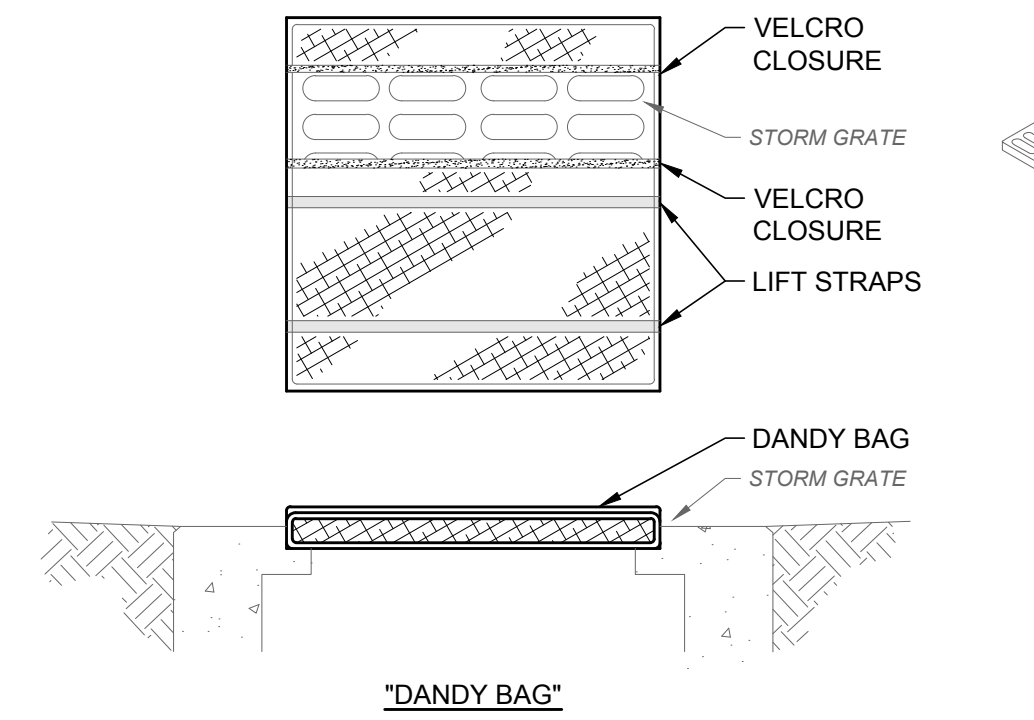
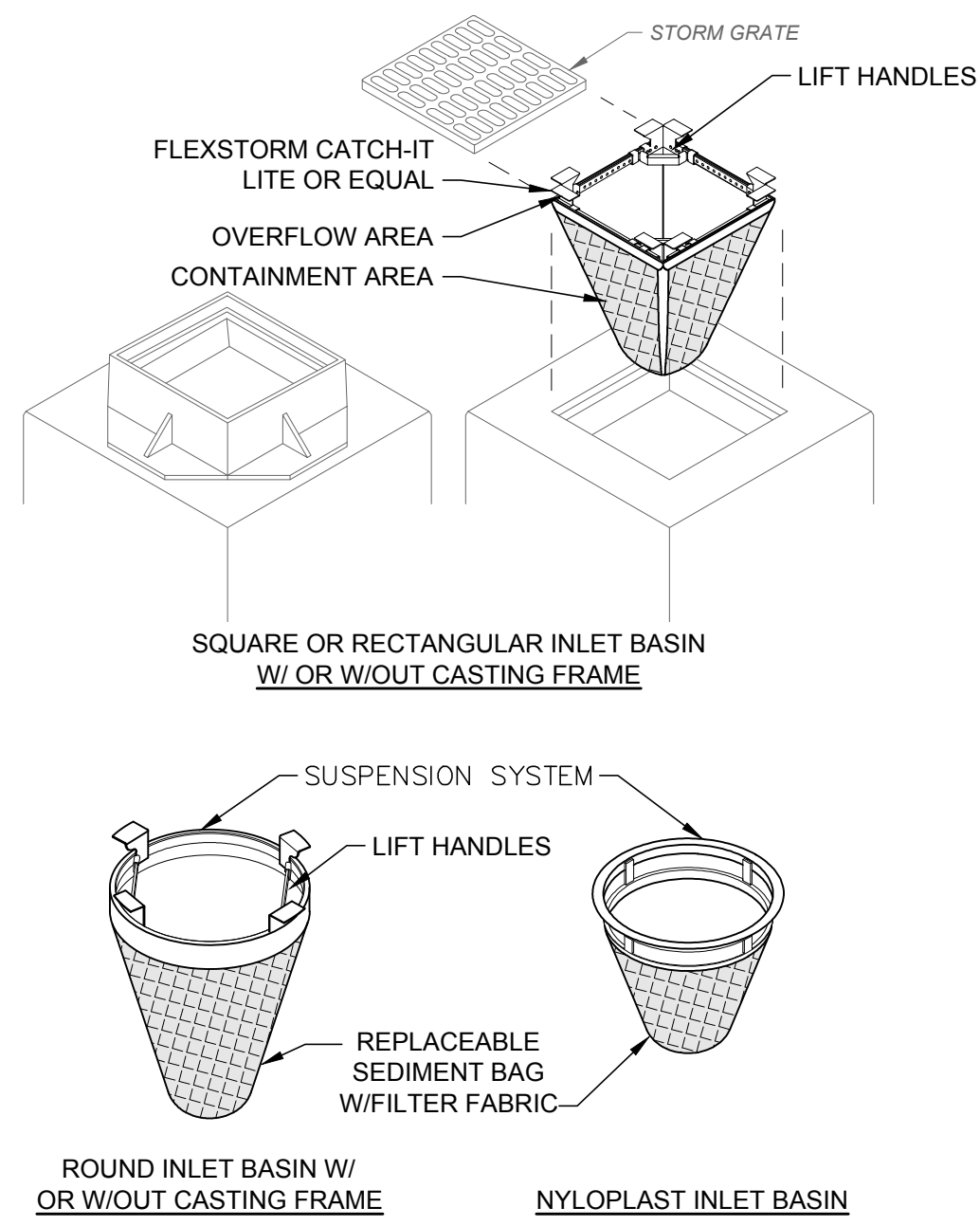
	PLATEA SILT LOAM; 2-6% SLOPES. TYPE C
	PIERPONT SILT LOAM, 12-18% SLOPES, ERODED. TYPE C

ISSUED FOR:	CD	NO	REVISION	DATE
ISSUE DATE: 8/5/2019	AS SHOWN			
SCALE: LCH / GMS	GMS			
DESIGNED BY: LCH / GMS	LCH			
DRAWN BY: GMS				
CHECKED BY: LCH				

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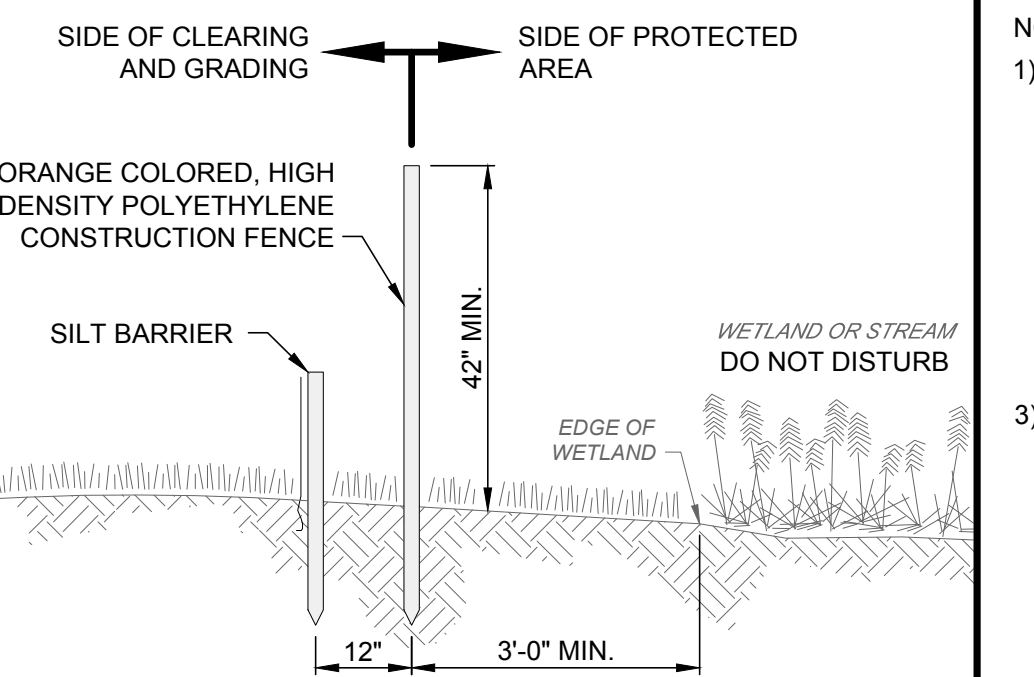
**STORM WATER POLLUTION PREVENTION PLAN**

PROJECT NO.	<b>18050002</b>
DISCIPLINE	<b>CIVIL</b>
SHEET NAME	<b>SWP_02</b>
SHEET	<b>23</b>
OF	<b>55</b>



- NOTES:
- 1) ALL NEW AND EXISTING STORM INLET BASINS WITHIN THE WORK LIMITS SHALL HAVE INLET PROTECTION INSTALLED UNLESS THE SEWER IS INACTIVE DUE TO PRIOR WORK.
  - 2) INLET PROTECTION SHALL BE INSTALLED AS EACH STORM INLET IS CONSTRUCTED.
  - 3) FRAMING SHALL BE CONSTRUCTED OF CORROSION RESISTANT STEEL (ZINC PLATED OR GALVANIZED).
  - 4) NOT ALL ITEMS SHOWN MAY APPLY, OR DIFFERENT TYPES OR CONFIGURATIONS MAY BE REQUIRED. THE CONTRACTOR SHALL MEASURE EACH INLET TO CONFIGURE AND ASSEMBLE CUSTOMIZED INLET FILTERS.

**INLET PROTECTION DETAIL**  
SCALE: NONE

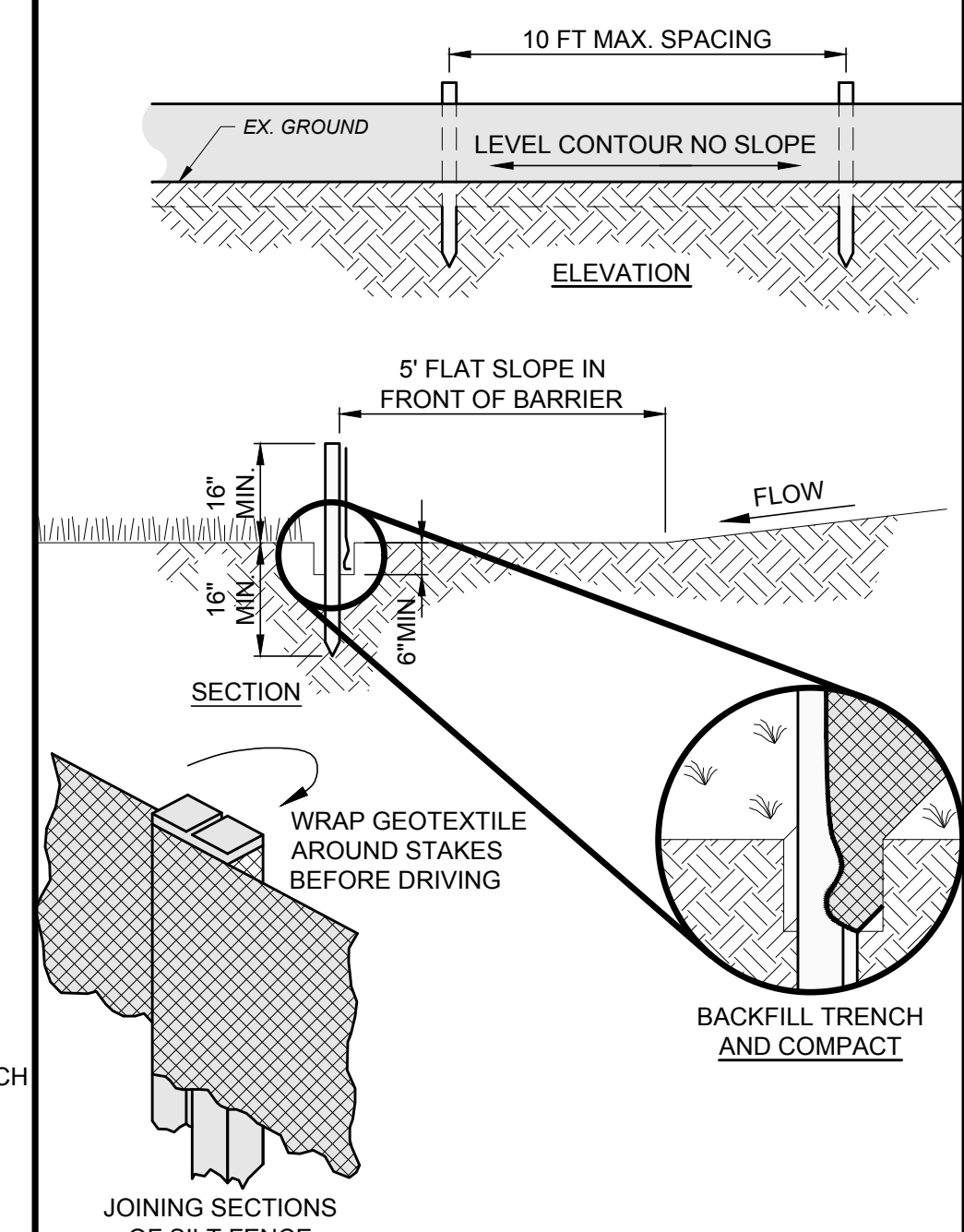


- NOTES:
- 1) THE CONTRACTOR MUST INSTALL AND MAINTAIN ORANGE CONSTRUCTION FENCE AND SILT BARRIER AROUND ALL STATE AND FEDERAL PROTECTED WETLANDS AND STREAMS TO PREVENT DISTURBANCE OR CONSTRUCTION ACTIVITIES WITHIN THESE PROTECTED AREAS.
  - 2) DO NOT DRIVE THROUGH OR OPERATE ANY EQUIPMENT WITHIN THESE ENVIRONMENTALLY SENSITIVE AREAS, INCLUDING BOB CATS, VEHICLES, CONSTRUCTION EQUIPMENT OR ANYTHING THAT WOULD DISTURB THE EXISTING GROUND.

**WETLAND BARRIER DETAIL**  
SCALE: NONE

- NOTES:
- 1) MULCH SHALL CONSIST OF ONE OF THE FOLLOWING:
    - UNROTTED SMALL GRAIN STRAW SPREAD UNIFORMLY AT 2 TONS/AC. (2 TO 3 BALES).
    - WOOD-CELLULOSE FIBER (I.E. HYDROSEEDING) APPLIED AT 1 TON/AC.
    - ROLLED EROSION CONTROL PRODUCT OR MULCH MATTING APPLIED PER MANUFACTURER RECOMMENDATION.
    - WOOD MULCH OR CHIPS APPLIED AT 6 TONS/AC.
  - 3) MULCH SHALL BE ANCHORED IMMEDIATELY BY ONE OF THE FOLLOWING METHODS:
    - PUNCH OR ANCHOR THE MULCH MATERIAL INTO THE SOIL USING A DISK, CRIMPER OR SIMILAR TOOL. DO NOT FINELY CHOP STRAW TO BE MECHANICALLY ANCHORED, BUT LEAVE LONGER THAN 6".
    - USE NETTING PER MANUFACTURER RECOMMENDATION IN AREAS OF CONCENTRATED RUNOFF OR ON CRITICAL SLOPES.
    - SYNTHETIC BINDERS AT MANUFACTURER RATE.
    - WOOD-CELLULOSE FIBER BINDER AT A NET DRY WEIGHT OF 750 LB/AC., MIXED WITH WATER, AND CONTAIN 50 LB/100 GAL. MAX. OF WOOD CELLULOSE FIBER.

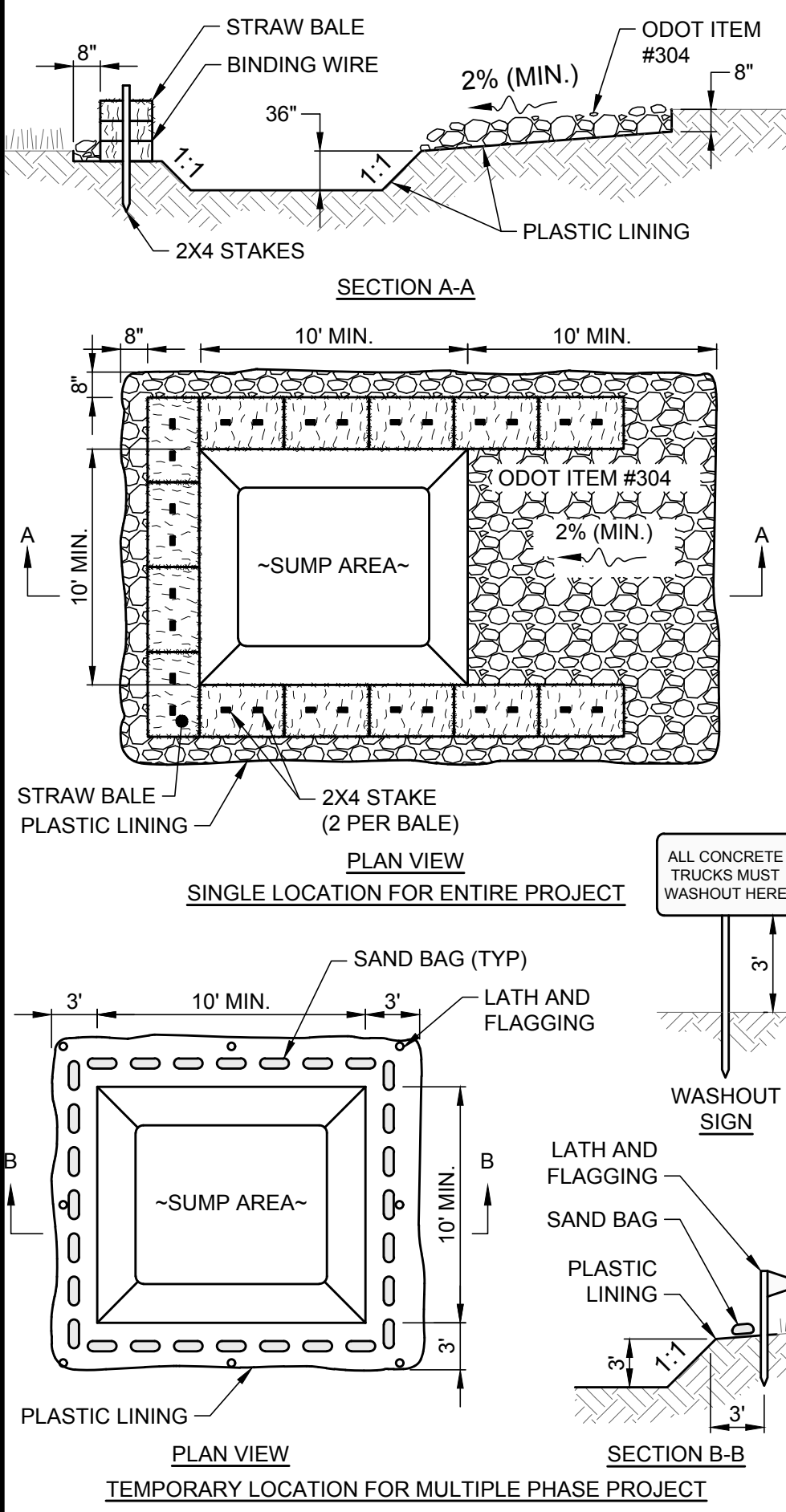
**MULCHING DETAIL**  
SCALE: NONE



FABRIC PROPERTIES	VALUES	TEST METHOD
GRAB TENSILE STRENGTH	90 LB. MIN	ASTM D-1682
MULLEN BURST STRENGTH	190 PSI MIN	ASTM D-3786
SLURRY FLOW RATE	0.3 GAL./MIN./S.F. MAX.	
EQUIVALENT OPENING SIZE	40-80	US STD. SIEVE CW-02215
ULTRAVIOLET RADIATION STABILITY	90% MIN	ASTM-G-26

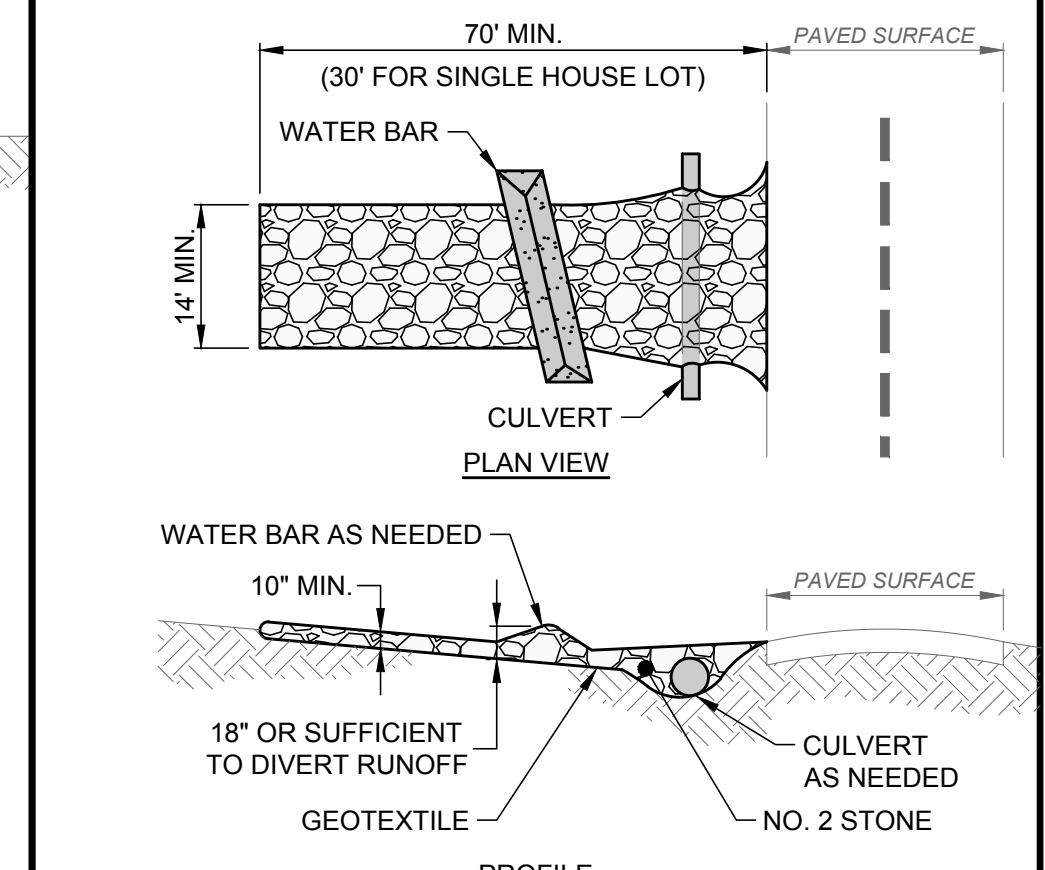
- NOTES:
- 1) PRESERVE VEGETATION FOR 5 FEET OR AS MUCH AS POSSIBLE UPSLOPE FROM THE SILT FENCE. IF VEGETATION IS REMOVED, IT SHALL BE RE-ESTABLISHED WITHIN 7 DAYS FROM SILT FENCE INSTALLATION.
  - 2) THE MAXIMUM DRAINAGE AREA PER 100 FEET OF SILT FENCE IS DEPENDENT ON THE SLOPE, BUT NO MORE THAN 1/2 ACRE. SILT FENCE CANNOT BE USED FOR DRAINAGE AREAS WITH SLOPES GREATER THAN 50%.
  - 3) SILT FENCE MAY ONLY PASS RUNOFF AS DIFFUSE FLOW THROUGH THE GEOTEXTILE. IF RUNOFF OVERTOPS THE SILT FENCE, FLOWS UNDER OR AROUND THE ENDS, OR IN ANY OTHER WAY BECOMES A CONCENTRATED FLOW, THEN CHANGE THE LAYOUT OF THE SILT FENCE. REMOVE ACCUMULATED SEDIMENT OR INSTALL OTHER PRACTICES.
  - 4) SILT FENCE SHALL BE INSPECTED FOR DEPTH OF SEDIMENT, TEARS, VERIFICATION FABRIC IS SECURELY ATTACHED TO FENCE POSTS, AND VERIFICATION FENCE POSTS ARE FIRMLY IN THE GROUND. BUILT UP SEDIMENT SHALL BE REMOVED FROM SILT FENCE WHEN IT HAS REACHED 1/3 THE FENCE HEIGHT.

**SILT FENCE**  
SCALE: NONE



- NOTES:
- 1) CONCRETE WASHOUT AREA SHALL BE LOCATED A MINIMUM OF 100' FROM STORM SEWER INLETS, STREAMS, WETLANDS OR ANY OTHER SURFACE WATERS.
  - 2) IF CONCRETE WASHOUT AREA IS LOCATED AWAY FROM A PAVED SURFACE, CONSTRUCT A GRAVEL ACCESS ROUTE EQUAL IN COMPOSITION TO A CONSTRUCTION ENTRANCE.
  - 3) CONCRETE WASHOUT AREA SHALL BE SUFFICIENT SIZE TO CONTAIN CONCRETE WASTE GENERATED. LARGE SITES MAY REQUIRE MULTIPLE CONCRETE WASHOUT AREAS.
  - 4) PLASTIC LINING SHALL BE DOUBLE-LINED, CONTINUOUS 10-MIL POLYETHYLENE SHEETING FREE OF HOLES, TEARS OR OTHER DEFECTS INSTALLED ON A SMOOTH, LEVEL SURFACE, FREE OF LARGE ROCKS AND DEBRIS.
  - 5) CONCRETE WASHOUT SIGNAGE SHALL BE CLEARLY VISIBLE AND LOCATED WITHIN 30 FEET OF EACH WASHOUT AREA.
  - 6) CONCRETE WASHOUT AREA SHALL BE COVERED DURING INCLEMENT WEATHER TO PREVENT OVERFLOWS.
  - 7) PREFABRICATED, PORTABLE AND RE-USABLE CONCRETE WASHOUT CONTAINERS ARE ACCEPTABLE IF SPECIFICALLY DESIGNED FOR CONCRETE WASHOUT USE.
  - 8) CONCRETE WASHOUT AREA SHALL BE INSPECTED DAILY TO CHECK FOR DAMAGE AND DETERMINE IF IT NEEDS CLEANED OR REPLACED. ANY DAMAGE TO THE SIDEWALLS OR PLASTIC LINING SHALL BE REPAIRED IMMEDIATELY. REPLACE THE ENTIRE CONCRETE WASHOUT AREA WHEN IT IS 75% FULL.

**CONCRETE WASHOUT AREA DETAIL**  
SCALE: NONE



- NOTES:
- 1) GEOTEXTILE SHALL BE COMPOSED OF STRONG ROT-PROOF POLYMERIC FIBERS MEETING THE FOLLOWING:
 

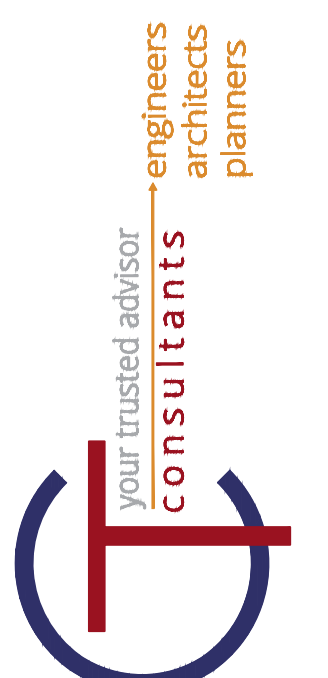
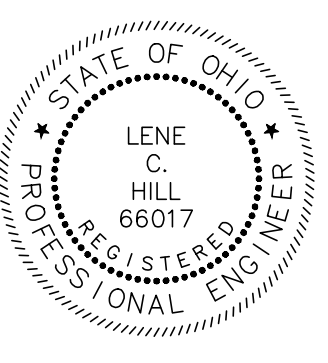
TENSILE STRENGTH	200 LB
PUNCTURE STRENGTH	80 PSI
TEAR STRENGTH	50 LB
BURST STRENGTH	320 PSI
ELONGATION	20%
EQUIVALENT OPENING SIZE	< 0.6 MM
PERMITTIVITY	0.001 CM/SEC.
  - 2) INSTALL WATER BAR, AS NEEDED, TO PREVENT SURFACE RUNOFF FROM FLOWING OUT ONTO PAVEMENT.
  - 3) APPLY ADDITIONAL STONE AS CONDITIONS DEMAND, REPLENISH STONE WHEN THE DEPTH IS LESS THAN 6", AND REPLACE IF STONES BECOMES MUD-LADEN.
  - 4) IMMEDIATELY REMOVE MUD DROPPED, WASHED OR TRACKED ONTO ROADS OR ANY SURFACE WHERE RUNOFF IS NOT CHECKED BY SEDIMENT CONTROLS BY SCRAPING OR SWEEPING.
  - 5) CONSTRUCTION ENTRANCE SHALL NOT BE RELIED UPON TO REMOVE MUD FROM VEHICLES OR PREVENT OFF-SITE TRACKING. VEHICLES THAT ENTER AND LEAVE THE SITE SHALL BE RESTRICTED FROM MUDDY AREAS.
  - 6) CONSTRUCTION ENTRANCE SHALL REMAIN UNTIL THE DISTURBED AREA IS STABILIZED OR REPLACED WITH A PERMANENT ROADWAY.

**CONSTRUCTION ENTRANCE**  
SCALE: NONE

- NOTES:
- 1) THE SEED BED SHALL BE PULVERIZED AND LOOSE TO ENSURE THE SUCCESS OF ESTABLISHING VEGETATION.
  - 2) SOIL AMENDMENTS MAY BE REQUIRED TO ESTABLISH ADEQUATE VEGETATION. PERFORM SOIL TESTS ON THE SITE TO PREDICT THE NEED FOR LIME AND FERTILIZER.
  - 3) APPLY SEED UNIFORMLY. COVER BROADCASTED SEED BY RAKING OR DRAGGING AND THEN LIGHTLY TAMPING INTO PLACE.
  - 4) APPLY MULCHING IMMEDIATELY AFTER SEEDING.
  - 5) SEEDING SHALL BE INSPECTED FOR BARE SPOTS AND WASHOUTS, AND RESEEDED AS NECESSARY.

TEMPORARY SEEDING SPECIES SELECTION			
DATES	SPECIES	LB/1,000 SF	LB/AC.
MARCH 1 TO AUGUST 15	OATS	3	128
	TALL FESCUE	1	40
	PERENNIAL RYEGRASS	1	40
AUGUST 16 TO NOVEMBER 1	PERENNIAL RYEGRASS	2	40
	TALL FESCUE	1	40
	RYE	3	112
	TALL FESCUE	1	40
	PERENNIAL RYEGRASS	1	40
	PERENNIAL RYEGRASS	1	40
NOVEMBER 1 TO SPRING	WHEAT	3	120
	TALL FESCUE	1	40
	PERENNIAL RYEGRASS	1	40
NOVEMBER 1 TO SPRING	PERENNIAL RYEGRASS	2	40
	TALL FESCUE	1	40
NOVEMBER 1 TO SPRING ONLY MULCH OR DORMANT SEEDING.			

**TEMPORARY SEEDING DETAIL**  
SCALE: NONE



ISSUED FOR:	CD	NO	REVISION	DATE
8/5/2019 <td></td> <td></td> <td></td> <td></td>				
AS SHOWN <td></td> <td></td> <td></td> <td></td>				
LCH / GMS <td></td> <td></td> <td></td> <td></td>				
GMS <td></td> <td></td> <td></td> <td></td>				
LCH <td></td> <td></td> <td></td> <td></td>				

LAKELAND TRANSFER CENTER  
LAKELAND COMMUNITY COLLEGE  
7601 CLOCKTOWER DR., KIRTLAND, OH 44094  
STORM WATER POLLUTION PREVENTION PLAN

PROJECT NO.	18050002
DISCIPLINE	CIVIL
SHEET NAME	SWP_03
SHEET	OF
24	55



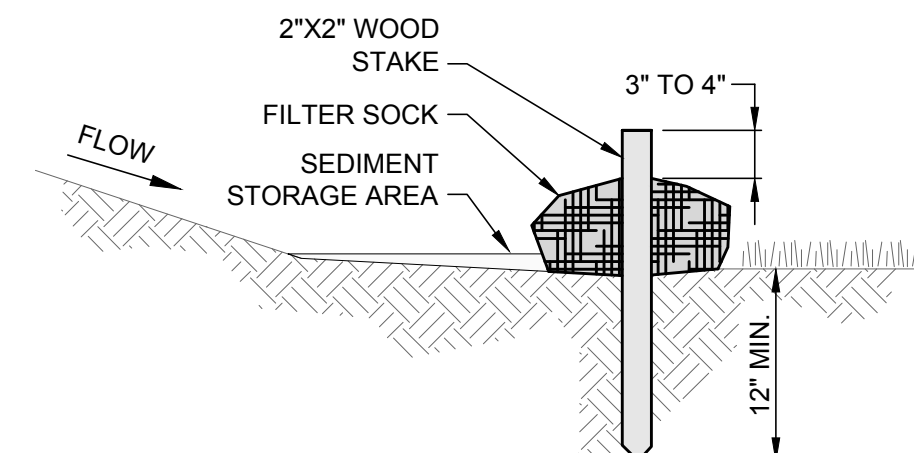
**NOTES:**

- SUBSOILING SHALL OCCUR WHEN SOIL MOISTURE IS LOW ENOUGH TO ALLOW THE SOIL TO CRACK OR FRACTURE. SUBSOILING IS NOT PERMITTED ON SLIP-PRONE AREAS.
- THE AREA SHALL BE GRADED AND TOPSOIL SPREAD WHERE NEEDED.
- THE SEEDBED SHALL BE PREPARED BY APPLYING AGRICULTURAL GROUND LIMESTONE OR FERTILIZER AS RECOMMENDED BY A SOIL TEST. IN LIEU OF A SOIL TEST, APPLY LIME AT 2 TONS/AC. OR FERTILIZER AT 500 LB/AC. OF 10-10-10 OR 12-12-12 ANALYSIS. LIME AND FERTILIZER SHALL BE WORKED INTO THE SOIL TO A DEPTH OF 3".
- APPLY SEED UNIFORMLY ON FIRM, MOIST SEED BED.
- SEEDING SHOULD BE APPLIED FROM MARCH 1 TO MAY 31 OR AUGUST 1 TO SEPTEMBER 30. IF SEEDING OCCURS OUTSIDE OF THESE DATES, ADDITIONAL MULCH AND IRRIGATION MAY BE REQUIRED TO ENSURE A MINIMUM OF 80% GERMINATION. TILLAGE FOR SEEDBED PREPARATION SHALL OCCUR WHEN THE SOIL IS DRY ENOUGH TO CRUMBLE AND NOT FORM RIBBONS WHEN COMPRESSED BY HAND.
- SEEDING SHOULD NOT BE APPLIED FROM OCTOBER 1 TO NOVEMBER 20 BECAUSE SEEDS MAY GERMINATE, BUT WILL NOT SURVIVE THE WINTER. USE THE FOLLOWING METHODS FOR DORMANT SEEDING:
  - FROM OCTOBER 1 TO NOVEMBER 20, INCREASE THE SEEDING RATE BY 50%, PREPARE THE SEED BED, ADD LIME AND FERTILIZER, MULCH AND ANCHOR.
  - FROM NOVEMBER 20 TO MARCH 15, ONLY IF SOIL CONDITIONS PERMIT, INCREASE THE SEEDING RATE BY 50%, PREPARE THE SEED BED, ADD LIME AND FERTILIZER, APPLY THE SEED MIXTURE, MULCH AND ANCHOR.
- APPLY MULCH MATERIAL IMMEDIATELY AFTER SEEDING.
- PERMANENT SEEDING SHALL INCLUDE IRRIGATION TO ESTABLISH VEGETATION DURING DRY OR HOT WEATHER OR ON ADVERSE SITE CONDITIONS AS NEEDED. AVOID EXCESSIVE IRRIGATION AND MONITOR TO PREVENT EROSION AND DAMAGE FROM RUNOFF.
- PERMANENT SEEDING SHALL NOT BE CONSIDERED ESTABLISHED FOR AT LEAST 1 FULL YEAR FROM THE TIME OF PLANTING. DURING THIS PERIOD, INSPECT FOR SOIL EROSION OR PLANT LOSS AND REPAIR BARE OR SPARSE AREAS, FILL GULLIES, RE-FERTILIZE, RE-SEED OR RE-MULCH AS NEEDED.
- ADEQUATE PERMANENT VEGETATION SHALL BE GROUND COVER DENSE ENOUGH TO COVER 80% OF THE SOIL SURFACE BASED ON VISUAL INSPECTION, AND MATURE ENOUGH TO SURVIVE WINTER WEATHER CONDITIONS.

PERMANENT SEEDING FERTILIZATION AND MOWING CHART				
MIXTURE	FORMULA	LB/AC.	TIME	MOW
CREeping RED FESCUE DOMESTIC RYEGRASS KENTUCKY BLUEGRASS	10-10-10	500	FALL, YEARLY, OR AS NEEDED	≥3"
TALL FESCUE	10-10-10	500		≥4"
TURF-TYPE FESCUE	10-10-10	500		
CROWN VETCH FESCUE	0-20-20	400	SPRING, AND YEARLY AFTER ESTABLISHED	DO NOT MOW
FLAT PEA FESCUE	0-20-20	400		

PERMANENT SEEDING SPECIES SELECTION		
SEED MIX	SEED RATE LB/AC.	NOTES:
GENERAL USE		
CREeping RED FESCUE	20 - 40	FOR CLOSE MOWING AND WATERWAYS WITH ≤2.0 FT./SEC. VELOCITY
DOMESTIC RYEGRASS	10 - 20	
KENTUCKY BLUEGRASS	20 - 40	
TALL FESCUE	40 - 50	
TURF-TYPE FESCUE	90	
STEEP BANKS OR CUT SLOPES		
TALL FESCUE	40 - 50	
CROWN VETCH TALL FESCUE	10 - 20 20 - 30	DO NOT SEED LATER THAN AUGUST
FLAT PEA TALL FESCUE	20 - 25 20 - 30	DO NOT SEED LATER THAN AUGUST
ROAD DITCHES AND SWALES		
TALL FESCUE	40 - 50	
TURF-TYPE FESCUE KENTUCKY BLUEGRASS	90 5	
LAWN		
KENTUCKY BLUEGRASS PERENNIAL RYEGRASS	100 - 120 100 - 120	
KENTUCKY BLUEGRASS CREeping RED FESCUE	100 - 120 100 - 120	FOR SHADED AREAS

**PERMANENT SEEDING DETAIL**  
SCALE: NONE



**NOTES:**

- FILTER SOCKS SHALL BE 3 OR 5 MIL CONTINUOUS, TUBULAR, HDPE 3/8" KNITTED MESH NETTING MATERIAL, FILLED WITH COMPOST.
- COMPOST SHALL BE WEED, PATHOGEN AND INSECT FREE, FREE OF ANY REFUSE, CONTAMINANTS OR OTHER MATERIALS TOXIC TO PLANT GROWTH, BE DERIVED FROM A WELL-DECOMPOSED SOURCE OF ORGANIC MATTER, AND CONSIST OF PARTICLES RANGING FROM 3/8" TO 2".
- FILTER SOCKS SHALL BE PLACED ON A LEVEL LINE ACROSS SLOPES PARALLEL TO THE BASE OF THE SLOPE. ON SLOPES APPROACHING 2:1, ADDITIONAL SOCKS SHALL BE PROVIDED AT THE TOP AND MID-SLOPE.
- FILTER SOCKS SHALL BE PLACED AT LEAST 5' FROM THE TOE OF SLOPE FOR SEDIMENT DEPOSIT.
- BUILT UP SEDIMENT SHALL BE REMOVED WHEN IT HAS REACHED 1/3 THE FILTER SOCK HEIGHT.
- WHEN A FILTER SOCK IS NO LONGER REQUIRED, IT SHALL BE DISPERSED ON-SITE.
- THE MAXIMUM DRAINAGE AREA PER 100 FEET OF FILTER SOCK IS 1/2 ACRE AND IS DEPENDENT ON THE SLOPE FOLLOWING THE GUIDANCE CHART BELOW:

MAX. SLOPE LENGTH ABOVE FILTER SOCK					
SLOPE	RATIO (H:V)	8"	12"	18"	24"
0% - 2%	0 - 50:1	125'	250'	300'	350'
2% - 10%	50:1 - 10:1	100'	125'	200'	250'
10% - 20%	10:1 - 5:1	75'	100'	150'	200'
20% - 50%	5:1 - 2:1	N/A	50'	75'	100'
≥ 50%	≥ 2:1	N/A	25'	50'	75'

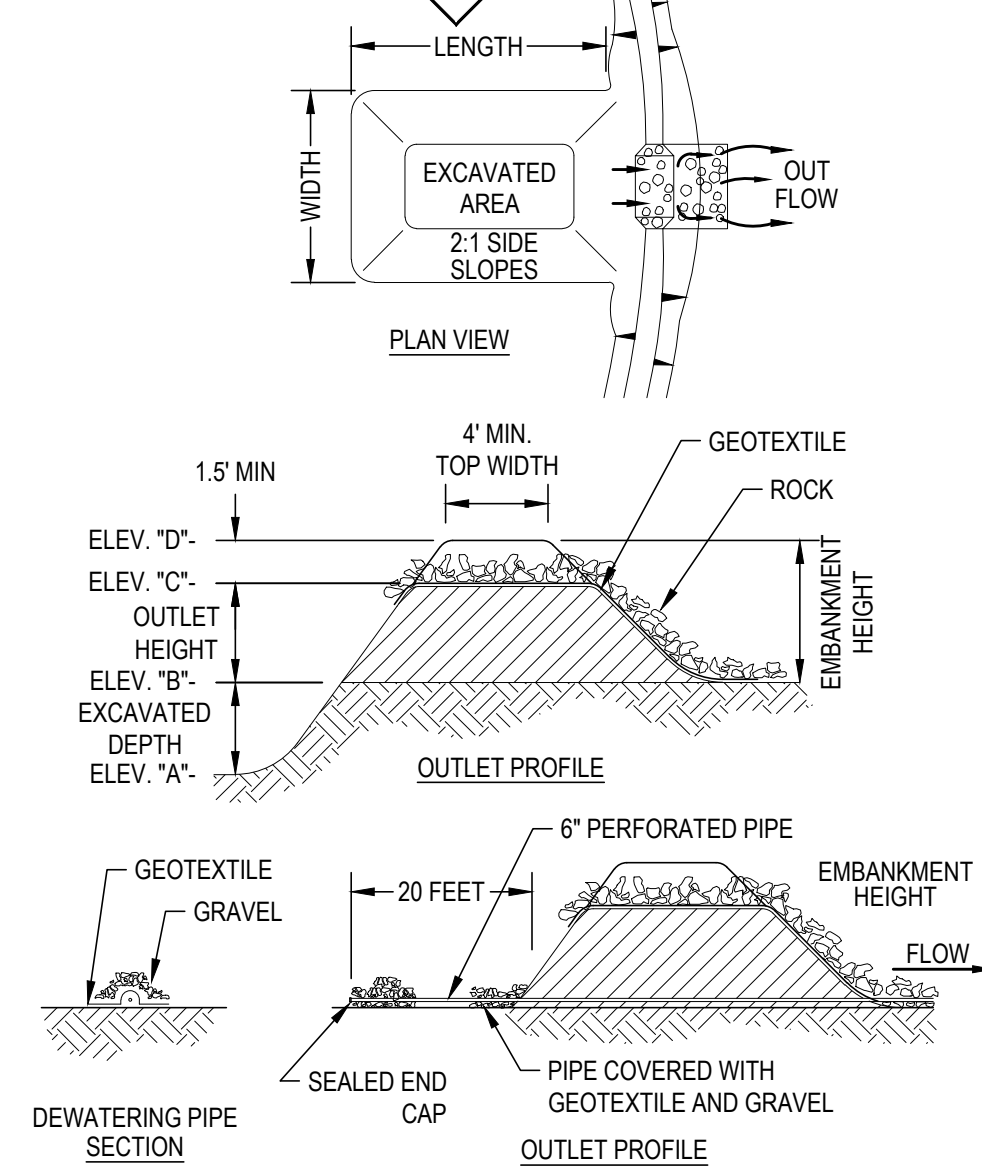
**FILTER SOCK DETAIL**  
SCALE: NONE

**NOTES:**

- SOD SHALL BE HARVESTED, DELIVERED AND INSTALLED WITHIN A PERIOD OF 48 HOURS. SOD NOT TRANSPLANTED WITHIN THIS PERIOD SHALL BE INSPECTED AND APPROVED PRIOR TO INSTALLATION.
- SOD SHALL BE KEPT MOIST AND COVERED DURING HAULING AND PREPARATION FOR PLACEMENT.
- SOD SHALL BE MACHINE CUT AT A UNIFORM SOIL THICKNESS OF 3/4" ± 1/4", EXCLUDING TOP GROWTH AND THATCH.
- THE AREA SHALL BE GRADED AND TOPSOIL SPREAD WHERE NEEDED.
- THE SEEDBED SHALL BE PREPARED BY APPLYING AGRICULTURAL GROUND LIMESTONE OR FERTILIZER AS RECOMMENDED BY A SOIL TEST. IN LIEU OF A SOIL TEST, APPLY LIME AT 100 LB/1,000 S.F. OR FERTILIZER AT 12 LB/1,000 S.F. OF 10-10-10 OR 12-12-12 ANALYSIS. LIME AND FERTILIZER SHALL BE WORKED INTO THE SOIL TO A DEPTH OF 3".
- BEFORE LAYING SOD, THE SURFACE SHALL BE FINE GRADED AND CLEARED OF ALL DEBRIS, STONES AND CLODS LARGER THAN 3" DIAMETER. KNOCK DOWN HIGH SPOTS AND FILL IN LOW SPOTS SO THE SOIL IS LEVEL AND 1" BELOW THE GRADE OF ANY PAVED SURFACE, SUCH AS CURBS, WALKS AND PAVEMENT.
- DURING PERIODS OF EXCESSIVELY HIGH TEMPERATURES, THE SOIL SHALL BE LIGHTLY IRRIGATED IMMEDIATELY PRIOR TO LAYING SOD.
- DO NOT PLACE SOD ON FROZEN SOIL.
- THE FIRST ROW OF SOD SHALL BE LAID IN A STRAIGHT LINE WITH SUBSEQUENT ROWS PLACED PARALLEL TO AND TIGHTLY WEDGED AGAINST EACH OTHER. LATERAL JOINTS SHALL BE STAGGERED IN A BRICK-LIKE PATTERN. ENSURE SOD IS NOT STRETCHED OR OVERLAPPED, AND THAT ALL JOINTS ARE BUTTED TIGHT.
- ON SLOPING AREAS WHERE EROSION MAY BE A PROBLEM, SOD SHALL BE LAID WITH THE LONG EDGE PARALLEL TO THE CONTOUR, WITH STAGGERED JOINTS AND BE SECURED WITH PEGS OR STAPLES.
- AS SODDING IS COMPLETED IN ANY ONE SECTION, ROLL OR TAMP THE SOD TO ENSURE SOLID CONTACT OF ROOTS WITH THE SOIL. WATER IMMEDIATELY AFTER ROLLING OR TAMPING UNTIL THE SOD AND SURFACE BELOW ARE THOROUGHLY WET. THE OPERATIONS OF LAYING, TAMPING AND IRRIGATING FOR ANY PIECE OF SOD SHALL BE COMPLETED WITHIN 8 HOURS.
- IN THE ABSENCE OF ADEQUATE RAINFALL DURING THE FIRST WEEK, WATER DAILY OR AS NECESSARY TO MAINTAIN MOIST SOIL 4" TO 6" DEEP. AFTER THE FIRST WEEK, WATER SOD AS NECESSARY TO MAINTAIN ADEQUATE MOISTURE AND ENSURE ESTABLISHMENT.
- DO NOT MOW UNTIL SOD IS FIRMLY ROOTED.

**SODDING DETAIL**  
SCALE: NONE

**SEDIMENT TRAP**



- SEDIMENT TRAPS TO BE CONSTRUCTED AND OPERATIONAL BEFORE UPSLOPE LAND DISTURBANCE BEGINS.
- CLEAR, GRUB, AND STRIP ALL VEGETATION AND ROOT MAT UNDER THE EMBANKMENT. CLEAR THE POOL AREA AS NEEDED TO FACILITATE SEDIMENT CLEANOUT.
- EMBANKMENT FILL MATERIAL IS TO BE FREE OF ROOTS OR OTHER WOODY VEGETATION AS WELL AS OVERSIZED STONES, ROCKS, ORGANIC MATERIAL OR OTHER OBJECTIONABLE MATERIAL. COMPACT THE EMBANKMENT BY TRAVERSING WITH EQUIPMENT WHILE IT IS BEING CONSTRUCTED. MAXIMUM EMBANKMENT HEIGHT IS 5' MEASURED FROM THE GROUND.
- CUT-AND-FILL SLOPES ARE TO BE 2:1 OR FLATTER.
- DIKES DIRECTING WATER TO THE TRAP TO BE HIGHER THAN THE HEIGHT OF THE EMBANKMENT.
- ESTABLISH TEMPORARY SEEDING ON ALL NON-SUBMERGED AREAS OF THE SEDIMENT TRAP.
- 67 C.Y. OF STORAGE VOLUME IS REQUIRED BELOW THE OUTLET CREST FOR EACH 1 AC. OF CONTRIBUTING DRAINAGE AREA. THIS STORAGE VOLUME IS ACHIEVED BY THE DIMENSIONS SHOWN ON THE PLANS.
- PLACE GEOTEXTILE OVER THE BOTTOM AND SLOPES OF THE OUTLET SPILLWAY. CONTINUE GEOTEXTILE DOWNSTREAM OF THE EMBANKMENT TO FORM AN APRON ON THE SURROUNDING GROUND. TO PREVENT RUNOFF FROM FLOWING UNDER THE GEOTEXTILE, THE SECTIONS NEAREST THE FRONT ARE TO OVERLAP EACH FOLLOWING SECTION BY AT LEAST 2'.
- PLACE 12" THICK ROCK ON THE GEOTEXTILE IN THE OUTLET SPILLWAY. USE ODOT TYPE "C" OR TYPE "D" ROCK.
- REMOVE SEDIMENT AND RESTORE THE SEDIMENT TRAP TO ITS ORIGINAL DIMENSIONS WHEN SEDIMENT HAS FILLED 40% OF THE TRAP'S ORIGINAL DEPTH. SPREAD REMOVED SEDIMENT IN A SUITABLE AREA AND STABILIZED SO IT WILL NOT ERODE.
- AFTER THE DRAINAGE AREA IS STABILIZED, PERMANENTLY STABILIZE THE STRUCTURE AND ACCUMULATED SEDIMENT.

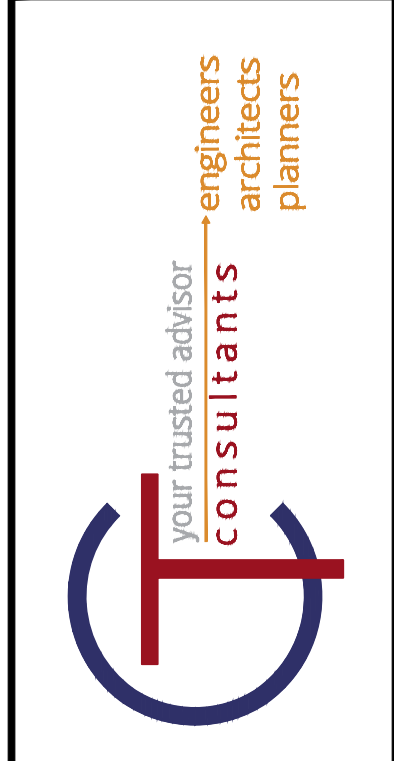
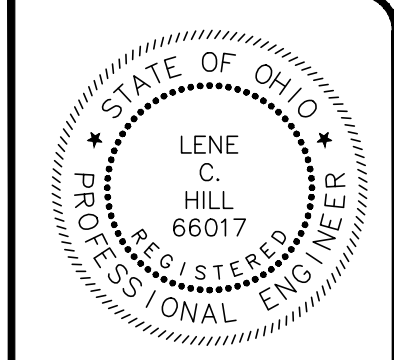
**SODDING DETAIL**  
SCALE: NONE

**SEDIMENT TRAP 1 CRITERIA**

LENGTH	125 FT
WIDTH	40 FT
WEIR LENGTH	6 FT
TOP EMBANKMENT ELEV. "D"	770.5
TOP OF DEWATERING ZONE ELEV. "C"	769.0
TOP OF SEDIMENT STORAGE ELEV. "B"	768.7
BOTTOM OF SEDIMENT TRAP ELEV. "A"	768.3
DRAINAGE AREA	1.82 AC
SEDIMENT VOLUME REQ.	1820 CF
SEDIMENT VOLUME PROVIDED	2000 CF
DEWATERING VOLUME REQ.	3,292 CF
DEWATERING VOLUME PROVIDED	3500 CF

**SEDIMENT TRAP 2 CRITERIA**

LENGTH	80 FT
WIDTH	24 FT
WEIR LENGTH	4 FT
TOP EMBANKMENT ELEV. "D"	767.5
TOP OF DEWATERING ZONE ELEV. "C"	766.0
TOP OF SEDIMENT STORAGE ELEV. "B"	765.6
BOTTOM OF SEDIMENT TRAP ELEV. "A"	765.1
DRAINAGE AREA	0.8 AC
SEDIMENT VOLUME REQ.	800 CF
SEDIMENT VOLUME PROVIDED	960 CF
DEWATERING VOLUME REQ.	1,447 CF
DEWATERING VOLUME PROVIDED	1728 CF

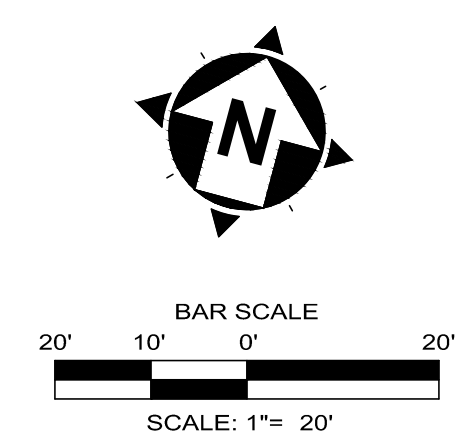


ISSUED FOR:	ISSUE DATE:	SCALE:	DESIGNED BY:	DRAWN BY:	CHECKED BY:
CD	8/5/2019	AS SHOWN	LCH / GMS	GMS	LCH

**LAKELAND TRANSFER CENTER**  
**LAKELAND COMMUNITY COLLEGE**  
 7601 CLOCKTOWER DR., KIRTLAND, OH 44094

**STORM WATER POLLUTION PREVENTION PLAN**

PROJECT NO.	18050002
DISCIPLINE	CIVIL
SHEET NAME	SWP_04
SHEET	OF
25	55

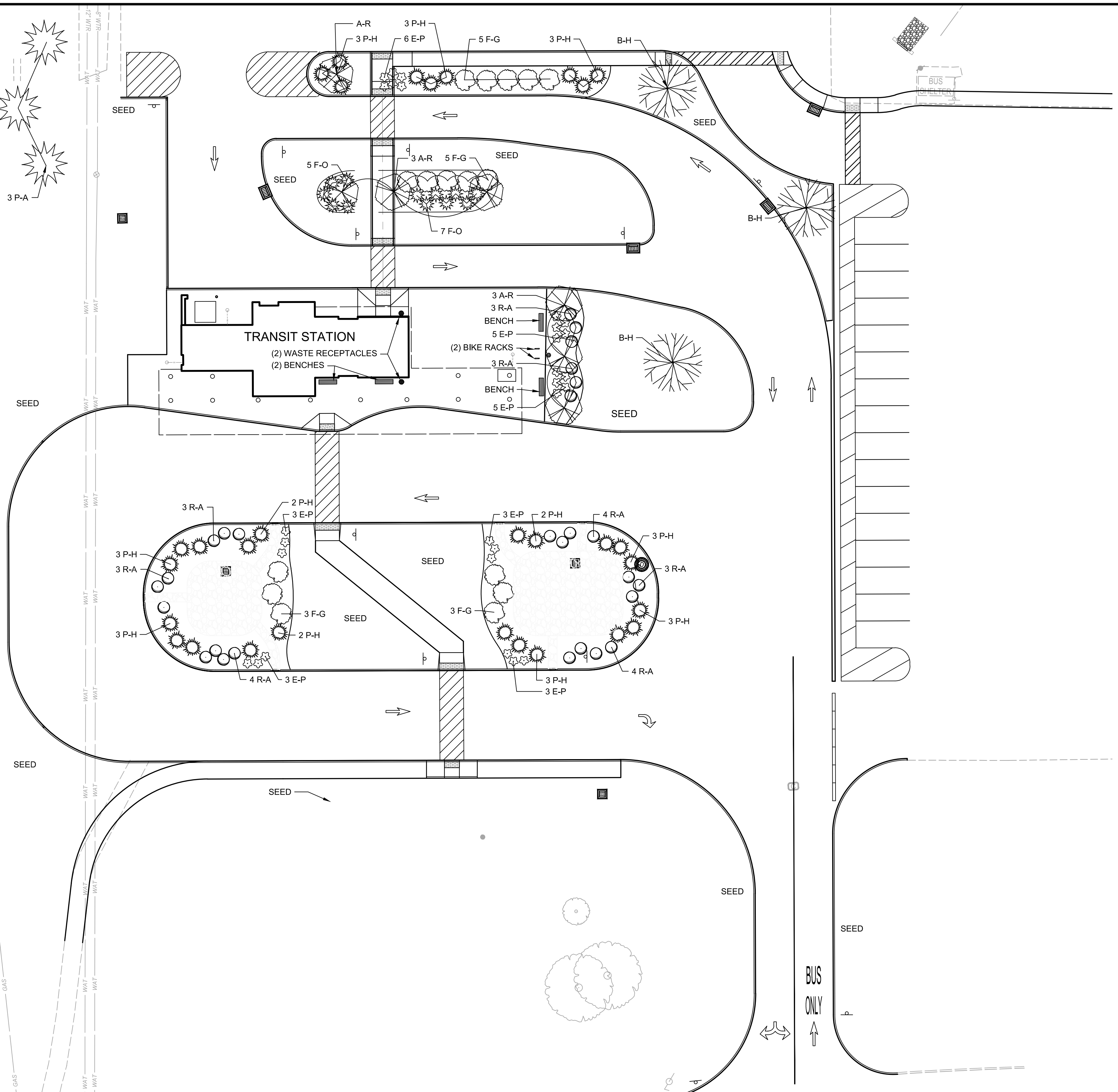


ISSUED FOR:	CD	NO	REVISION	DATE
ISSUE DATE:	5/30/19			
SCALE:	AS SHOWN			
DESIGNED BY:	RS			
DRAWN BY:	RS			
CHECKED BY:	CC			

**LAKELAND TRANSFER CENTER**  
 LAKELAND COMMUNITY COLLEGE  
 7601 CLOCKTOWER DR., KIRTLAND, OH 44094

**LANDSCAPE PLAN**

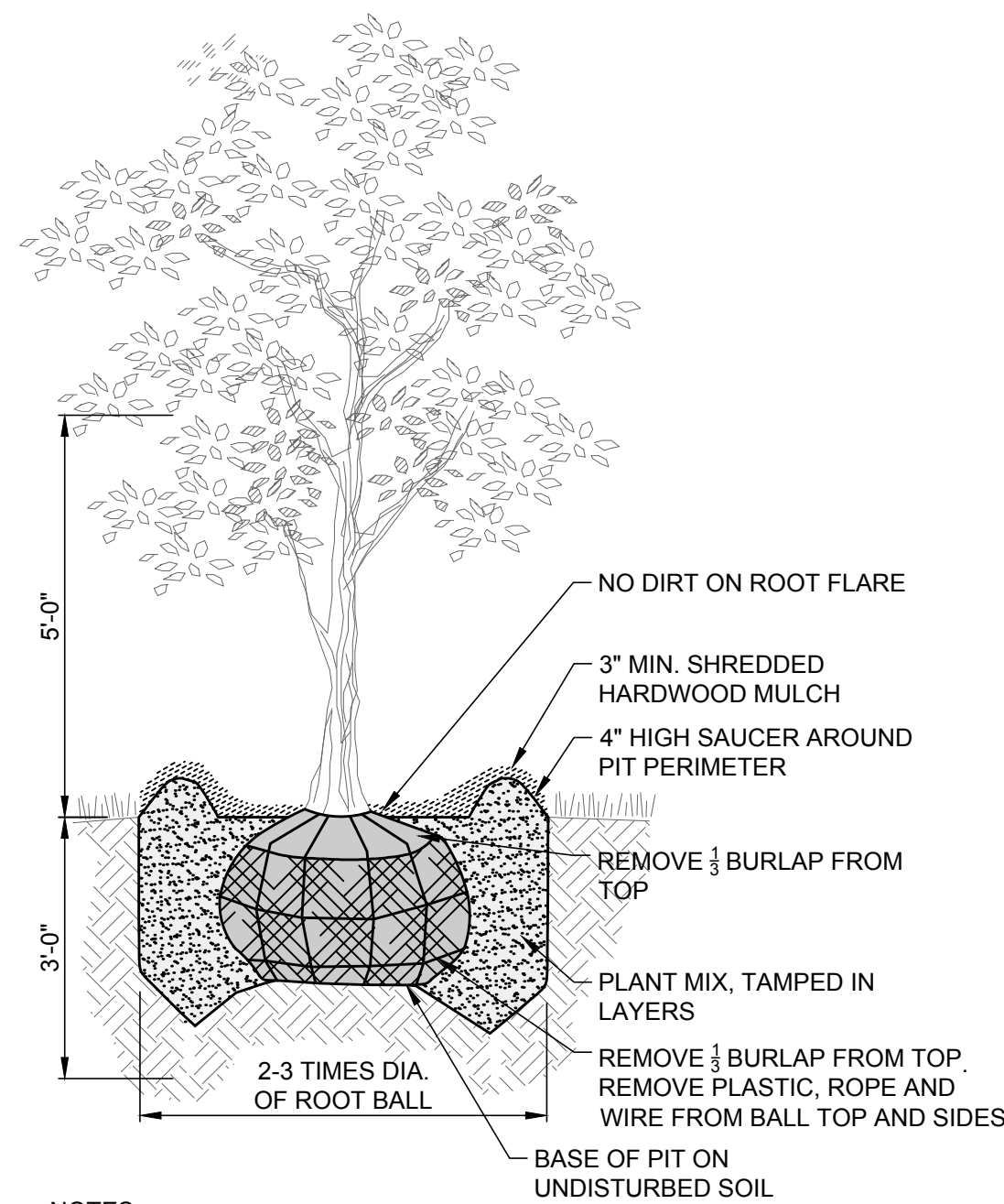
PROJECT NO.	
<b>18050002</b>	
DISCIPLINE	
<b>LANDSCAPE</b>	
SHEET NAME	
<b>L-01</b>	
SHEET	OF
<b>26</b>	<b>55</b>



RESTORE AND  
 SEED UTILITY  
 WORK AREAS

**PLANT MATERIAL LIST**

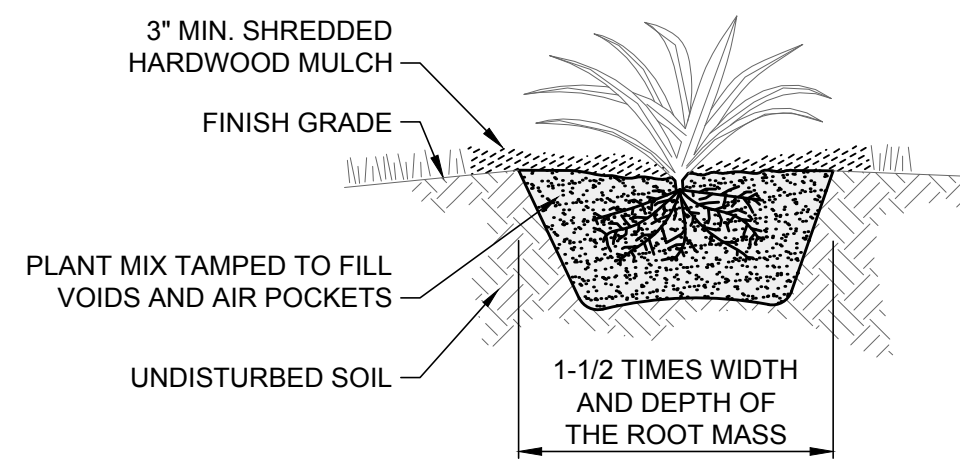
QTY.	KEY	BOTANICAL NAME	COMMON NAME	SIZE	NOTES
7	A-R	ACER RUBRUM 'NEW WORLD'	NEW WORLD RED MAPLE	2 1/2" CAL.	B&B
3	B-H	BETULA N. 'HERITAGE'	HERITAGE RIVER BIRCH	8' HT.	B&B,MULTI
28	E-P	ECHINACEA PURPUREA	PURPLE CONEFLOWER	#2 CONT.	2' O.C.
16	F-G	FOTHERGILLA GARDENII	DWARF FOTHERGILLA	24" HT.	#3 CONT.
12	F-O	FESTUCA OVINA 'ELIJAH BLUE'	ELIJAH BLUE FESCUE	#2 CONT.	CLUMP
30	P-H	PENNISTEM A. 'HAMELIN'	DWARF FOUNTAIN GRASS	#2 CONT.	CLUMP
3	P-A	PICEA ABIES	NORWAY SPRUCE	6'	B&B
27	R-A	RHUS AROMATIC 'GRO-LOW'	GRO-LOW SUMAC	18" HT.	B&B



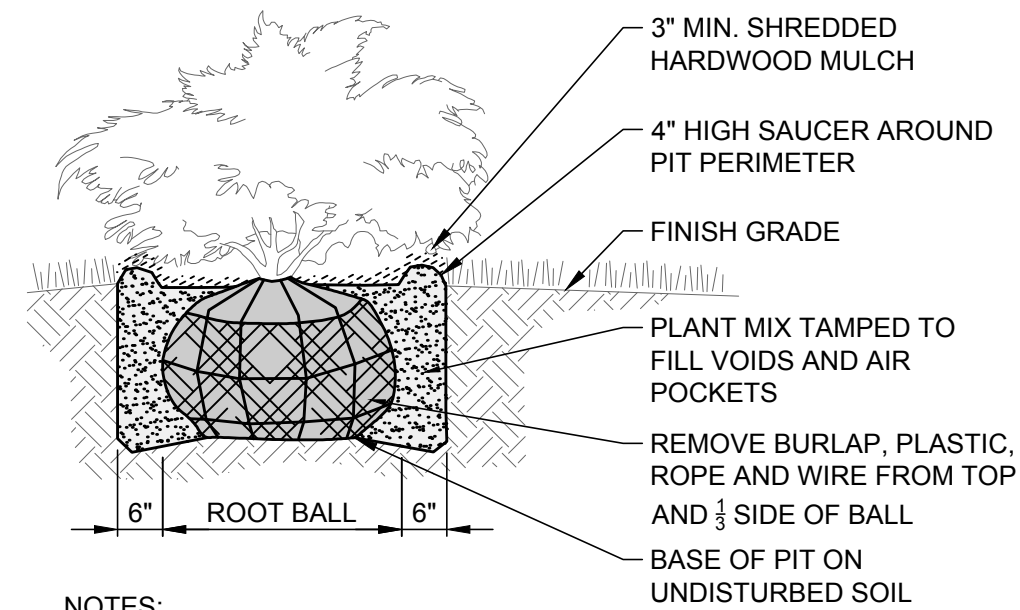
NOTES:

- 1) CROWN OF ROOT BALL TO BEAR THE SAME RELATION TO FINISH GRADE WHICH IT WAS GROWN AT THE NURSERY.
- 2) WATER AS NEEDED W/ WATERING BAGS.

**8 TREE PLANTING DETAIL**  
L-02 SCALE: NONE



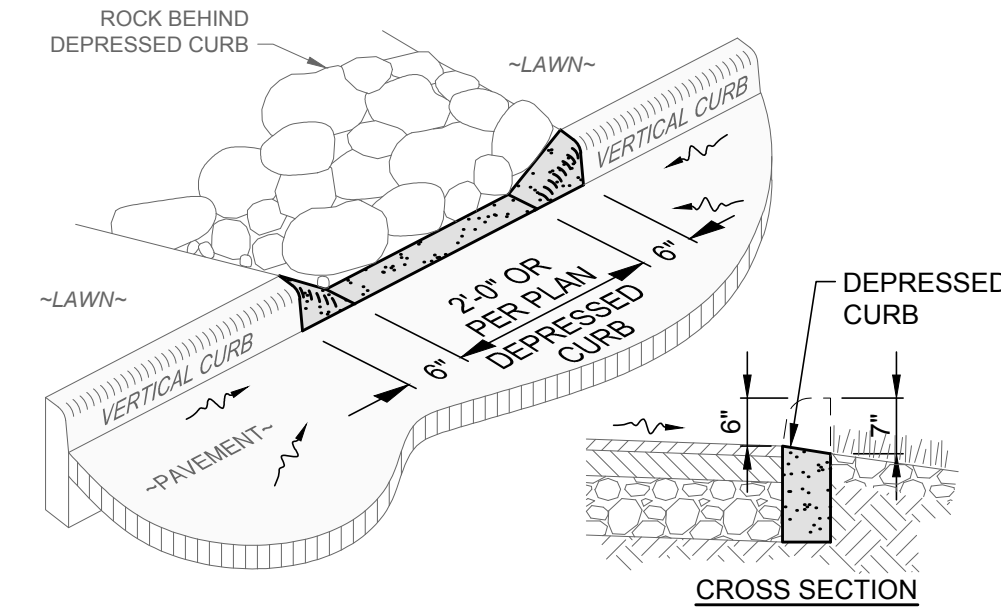
**7 ANNUAL AND PERENNIAL PLANTING DETAIL**  
L-02 SCALE: NONE



NOTES:

- 1) CROWN OF ROOT BALL TO BEAR THE SAME RELATION TO FINISH GRADE WHICH IT WAS GROWN AT THE NURSERY.

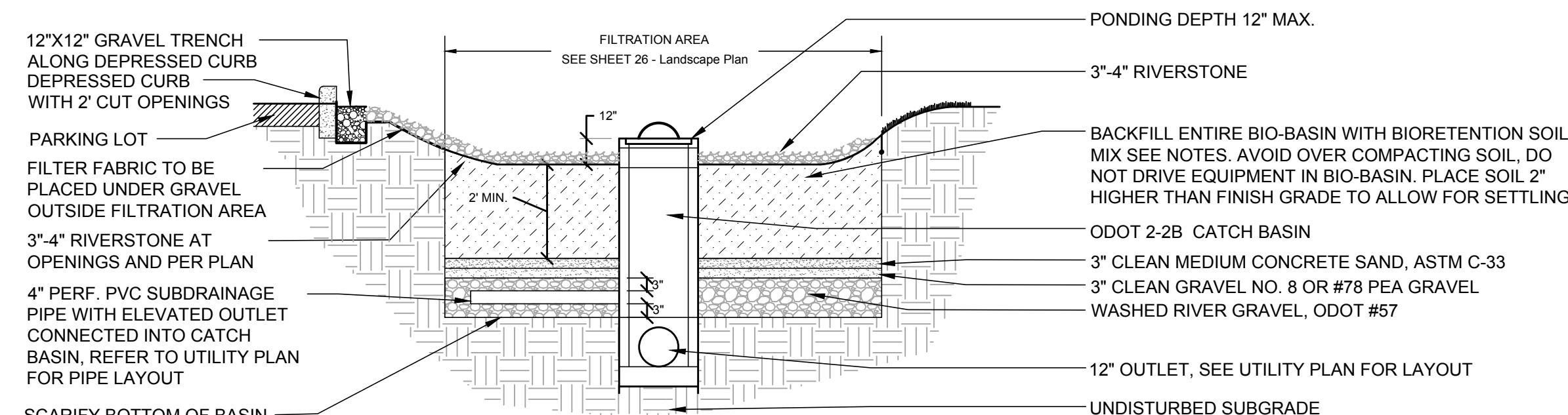
**6 SHRUB PLANTING DETAIL**  
L-02 SCALE: NONE



NOTES:

- 1) DEPRESSED CURB EDGE SHALL BE FLUSH WITH PAVEMENT AND SLOPED TOWARDS BIO-RETENTION BASIN.
- 2) THIS DETAIL SHOWS A VERTICAL CURB FOR REFERENCE ONLY. SEE SITE PLAN FOR ACTUAL TYPE OF CURB.

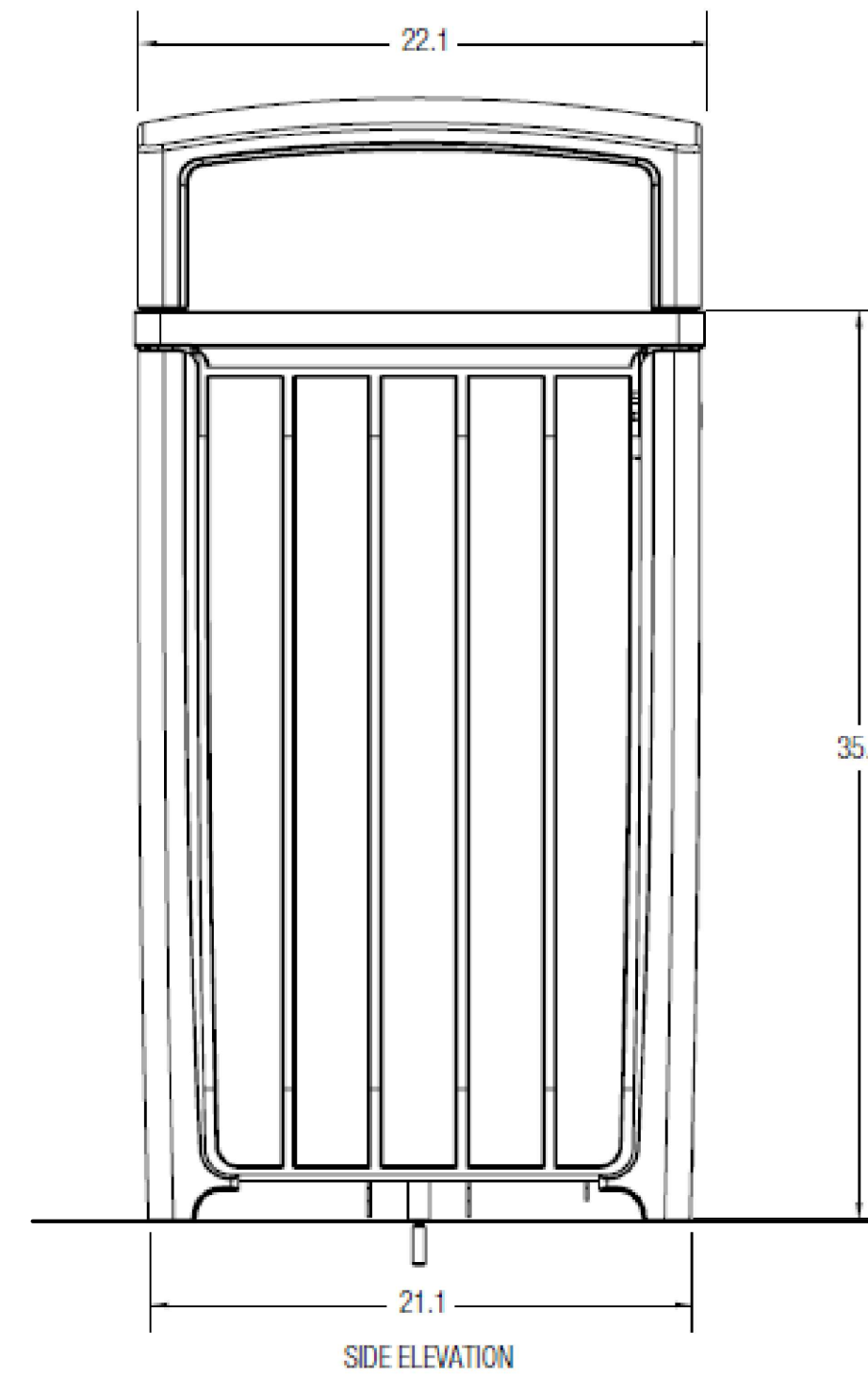
**5 DEPRESSED CURB AT BIO-BASIN DETAIL**  
L-02 SCALE: NONE



NOTES:

- 1) BIORETENTION SOIL MIX WILL BE OBTAINED FROM KURTZ BROTHERS OR EQUAL, 216-986-9000, CALLED HYDRO CLEAR BIORETENTION SOIL™ MIX OR EQUAL OEPA APPROVED SOIL MIX. SOIL SHALL BE A LOAMY SAND: SAND SHALL BE >80% CLAY CONTENT <10% ORGANIC CONTENT 3-5% BY WEIGHT, pH 5.2-8% AND PHOSPHORUS 15-60 mg/kg P. THE FILL MEDIA SHALL BE A UNIFORM MIX, FREE OF STONES, STUMPS, ROOTS, OR OTHER SIMILAR OBJECTS LARGER THAN 0.04 INCHES. AVOID OVER COMPACTING THE SOIL MIX. DO NOT DRIVE EQUIPMENT IN THE BIO-BASIN.
- 2) BIORETENTION SOIL MIX MUST MEET ODNR BIORETENTION SOIL SPECIFICATIONS.

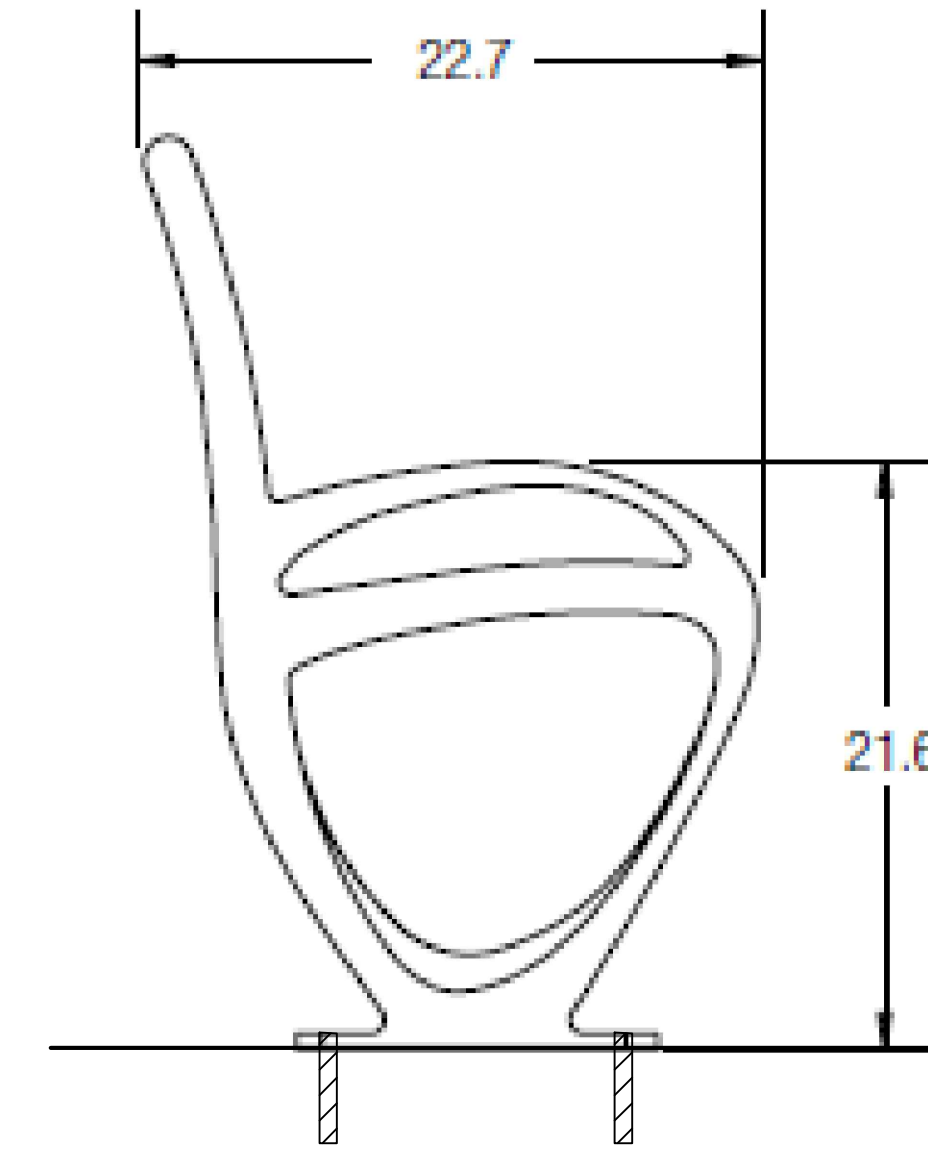
**3 TYPICAL BIO-BASIN SECTION**  
L-02 SCALE: NONE



NOTES:

- 1) BENCH SHALL BE 36 GALLON CORDIA LITTER RECEPTACLE HARDWOOD INSERTS AND RAIN COVER, MODEL #SLCOR-136J AS MANUFACTURED BY FORMS+SURFACES 800-451-0410.
- 2) RAIN COVER, LID AND BODY FINISH SHALL CREAM TEXTURE POWDERCOAT TO MATCH EXISTING RESEPTACLES.
- 3) MOUNT TO SIDEWALK WITH MANUFACTURER'S ANCHORS.

**5 LITTER RECEPTACLE**  
L-02 SCALE: NONE



NOTES:

- 1) BENCH SHALL BE 6\"/>

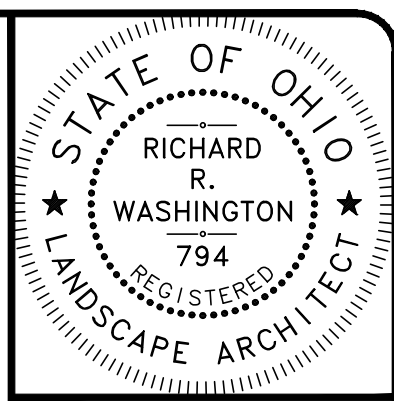
**2 BENCH**  
L-02 SCALE: NONE



NOTES:

- 1) BENCH SHALL BE CAST ALUMINUM TRIO BIKE RACK, MODEL #SKTRO, AS MANUFACTURED BY FORMS+SURFACES 800-451-0410.
- 2) FRAME FINISH SHALL BE CREAM TEXTURE POWDERCOAT TO MATCH EXISTING BIKE RACK.
- 3) MOUNT TO SIDEWALK WITH MANUFACTURER'S ANCHORS.

**1 BIKE RACK**  
L-02 SCALE: NONE



Richard Washington, License #794  
Expiration Date 12/31/20

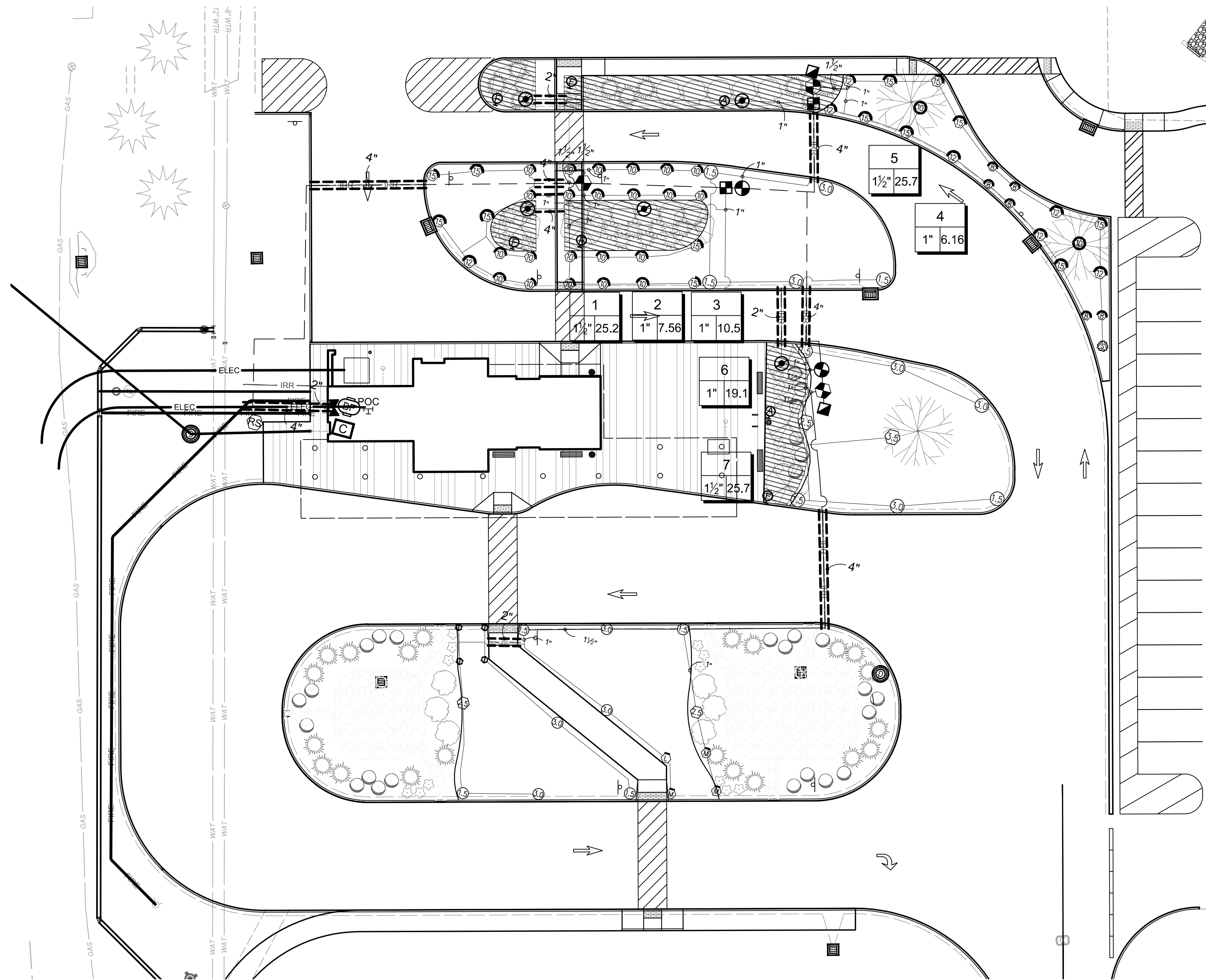


DATE	REVISION	NO	CD	ISSUED FOR:	ISSUE DATE:	SCALE:	DESIGNED BY:	DRAWN BY:	CHECKED BY:
			5/30/19		AS SHOWN		RS	RS	CC

**LAKELAND TRANSFER CENTER**  
**LAKELAND COMMUNITY COLLEGE**  
7601 CLOCKTOWER DR., KIRTLAND, OH 44094

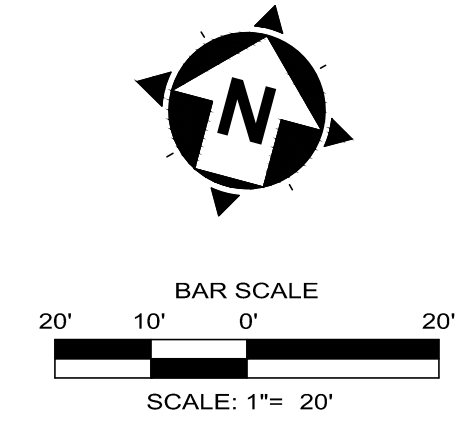
**LANDSCAPE DETAILS**

PROJECT NO.	<b>18050002</b>
DISCIPLINE	<b>LANDSCAPE</b>
SHEET NAME	<b>L-02</b>
SHEET	<b>27</b>
OF	<b>55</b>



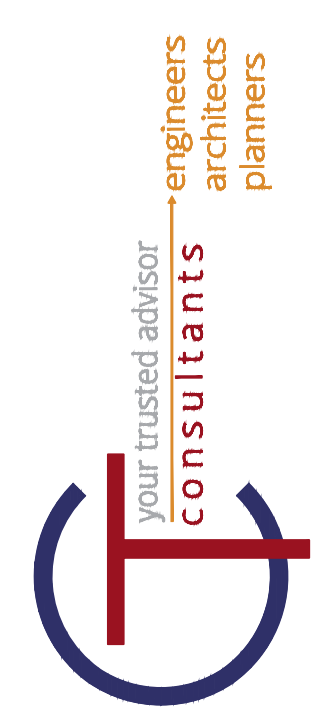
### IRRIGATION SCHEDULE

SYMBOL	MANUFACTURER/MODEL	QTY
ES	Hunter PROS-04 5' strip spray	1
ES	Rain Bird 1804 - 5' Strip Spray	6
Q	Hunter PROS-04 8' radius	24
T	Rain Bird 1804 8' Series MPR	7
H	Hunter PROS-04 10' radius	13
F	Rain Bird 1804 10' Series MPR	4
TT	Hunter PROS-04 12' radius	4
TG	Rain Bird 1804 12' Series MPR	4
TF	Hunter PROS-04 15' radius	4
TD	Rain Bird 1804 15' Series MPR	4
M	Hunter MP1000 PROS-04-PRS40-CV	4
D	Rain Bird 1804SAMP45 W/ MP1000	4
ADJ.	Hunter MP800SR PROS-04-PRS40-CV	4
360	Rain Bird 1804SAMP45 W/ MP800SR	
SYMBOL	MANUFACTURER/MODEL	QTY
1.5	Hunter PGP-04	10
5.0	Rain Bird 5004PC	9
2.5	Hunter PGP-04-LA	3
3.5	Rain Bird 5004PC-LA	1
SYMBOL	MANUFACTURER/MODEL	QTY
■	Hunter PCZ-101-40 1"	2
⊙	Rain Bird XCZ-100-PRF 1"	5
⊕	Pipe Transition Point above grade	5
⊖	Flush Valve	5
⊗	Drip Air Relief Valve	2
▨	Area to Receive Dripline	1,372 l.f.
	Hunter HDL-09-18 (18)	
	Rain Bird XFD-09-18 (18)	
SYMBOL	MANUFACTURER/MODEL	QTY
⊙	Hunter PGV-101G 1"	2
⊖	Rain Bird PGA-100 1"	3
⊗	Hunter PGV-151 Globe 1-1/2"	2
⊖	Rain Bird PGA-150 1-1/2"	1
⊗	Hunter HQ-5RC 1"	1
⊖	Rain Bird 5RC 1"	1
⊗	Isolation Gate Valve	1
BF	Wilkins 375 1-1/2"	1
C	Hunter PC-400 with (01) PCM-300	1
RS	Rain Bird ESP4ME With (1) ESP-SM3	1
POC	Hunter WR-CLIK	1
⊕	Rain Bird WR2RC	1
⊕	POC 1-1/2"	1
---	Irrigation Lateral Line: PVC Class 200 SDR 21 1"	1,320 l.f.
---	Irrigation Lateral Line: PVC Class 200 SDR 21 1 1/2"	186.3 l.f.
---	Irrigation Mainline: PVC Class 200 SDR 21 2"	346.5 l.f.
---	Pipe Sleeve: PVC Schedule 40 2"	34.2 l.f.
---	Pipe Sleeve: PVC Schedule 40 4"	141.0 l.f.
⊕	Valve Callout	
⊕	Valve Number	
⊕	Valve Flow	
⊕	Valve Size	



### IRRIGATION SPECIFICATIONS

- IRRIGATION SYSTEM DESIGN BASED ON 40 GPM AT 70 PSI.
- IRRIGATION DESIGN IS FROM THE POINT OF CONNECTION(POC) ONLY. THE DESIGN IS BASED ON GALLONS PER MINUTE(GPM) AND POUNDS PER SQUARE INCH(PHI) FURNISHED BY OTHERS.
- IRRIGATION CONTRACTOR IS TO VERIFY POINT OF CONNECTION IN THE FIELD. INSTALLER IS TO CONFIRM THE MINIMUM DISCHARGE REQUIREMENTS OF THE POINT OF CONNECTION AS INDICATED ON THE LEGEND PRIOR TO INSTALLATION.
- THE PRESSURE REQUIREMENT AT THE POINT OF CONNECTION IS BASED ON NO MORE THAN 5 FEET OF ELEVATION CHANGE IN THE AREAS OF IRRIGATION.
- ALL PRODUCTS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND ACCORDING TO LOCAL BUILDING, ELECTRICAL, AND PLUMBING CODES.
- IRRIGATION CONTRACTOR WILL ARRANGE INSPECTIONS REQUIRED BY LOCAL AGENCIES AND ORDINANCES DURING THE COURSE OF CONSTRUCTION AS REQUIRED. ALL WIRING TO BE PER LOCAL CODE. BACKFLOW PREVENTION TO BE PER LOCAL CODE.
- LOCATION OF IRRIGATION COMPONENTS SHOWN ON DRAWING IS APPROXIMATE. ACTUAL PLACEMENT MAY VARY SLIGHTLY AS REQUIRED TO ACHIEVE FULL, EVEN COVERAGE.
- ALL SPRINKLER HEADS SHALL BE INSTALLED PERPENDICULAR TO FINISH GRADES. EXCEPT AS OTHERWISE INDICATED.
- INSTALL IRRIGATION MAINS WITH A MINIMUM 18" OF COVER BASED ON FINISH GRADES. INSTALL IRRIGATION LATERALS WITH MINIMUM 12" OF COVER BASED ON FINISH GRADES.
- PIPE LOCATIONS ARE DIAGRAMMATIC. VALVES AND MAINLINE SHOWN IN PAVED AREAS ARE FOR GRAPHIC CLARITY ONLY.
- THE IRRIGATION CONTRACTOR SHALL COMPLY WITH PIPE SIZES AS INDICATED.
- ALL WIRE SPLICES OR CONNECTIONS SHALL BE MADE WITH APPROVED WATERPROOF WIRE CONNECTIONS AND BE IN A VALVE OR SPLICE BOX.
- ALL CONTROL WIRING DOWNSTREAM OF THE CONTROLLER IS TO BE 14 AWG, UL APPROVED DIRECT BURY.
- THE DESIGN IS BASED ON THE SITE INFORMATION AND/OR DRAWING SUPPLIED WITH THE DESIGN CRITERIA BEING SET (AREA TO BE IRRIGATED, EQUIPMENT MANUFACTURER AND MODEL TO BE USED, WATER SOURCE INFORMATION, ELECTRICAL POWER AVAILABILITY, ETC...). SITEONE LANDSCAPE SUPPLY BEARS NO RESPONSIBILITY OR LIABILITY FOR ANY ERRORS IN DESIGN OR INSTALLATION THAT ARISE DUE TO INACCURACIES IN THE ABOVE REFERENCED INFORMATION SUPPLIED TO SITEONE LANDSCAPE SUPPLY LANDSCAPES IN RELATION TO THIS PROJECT, UNLESS OTHERWISE NOTED.



ISSUED FOR:	CD	NO	REVISION	DATE
5/30/19 <td>AS SHOWN <td>RS <td>RS <td>CC</td> </td></td></td>	AS SHOWN <td>RS <td>RS <td>CC</td> </td></td>	RS <td>RS <td>CC</td> </td>	RS <td>CC</td>	CC

**LAKELAND TRANSFER CENTER**  
**LAKELAND COMMUNITY COLLEGE**  
 7601 CLOCKTOWER DR., KIRTLAND, OH 44094

**IRRIGATION PLAN**



1-800-347-4272  
<http://www.projects-services.siteone.com>

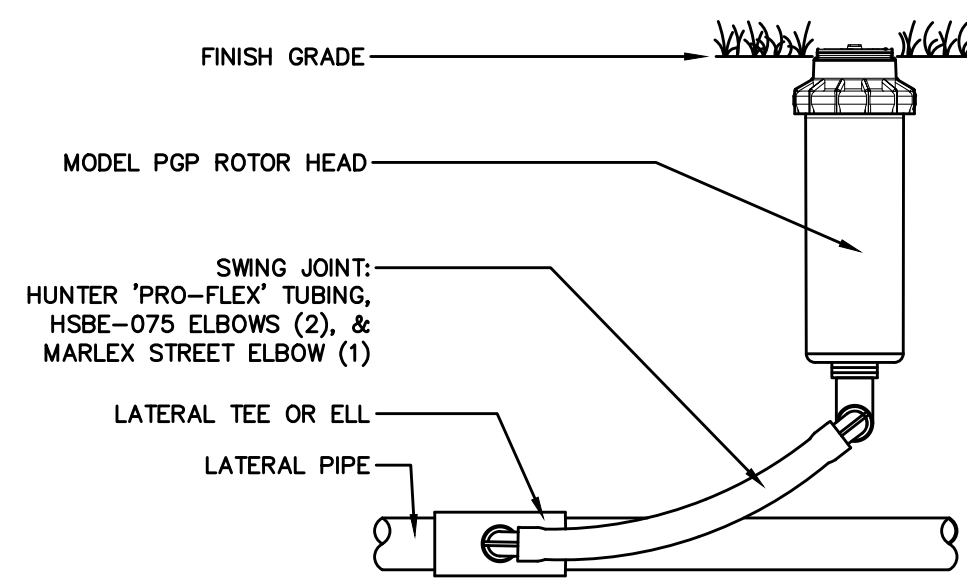
650 Stephenson Highway  
 Troy, Michigan 48083  
 Phone 248.588.2100  
 Fax 248.588.3528  
 www.Siteone.com  
 800.347.4272

Project Services Number: 186492  
 Lakeland Community College Transfer Station  
 Kirtland, OH, 44094  
 Design Date: 05/08/19  
 Drawn By: DK  
 Checked By: C. GRAHAM  
 Revision Date: 05/29/19



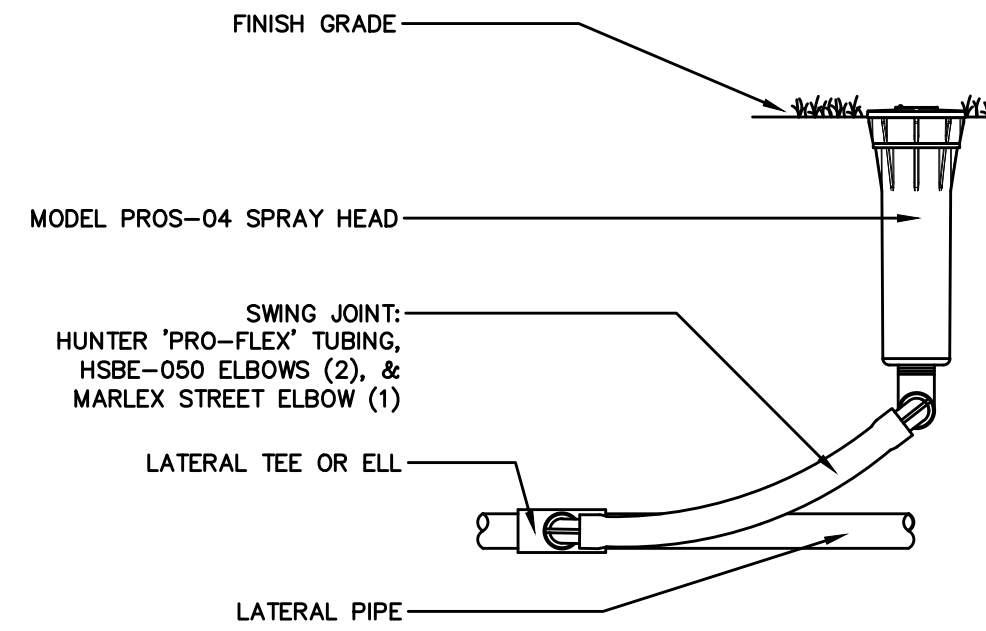
PROJECT NO.	18050002
DISCIPLINE	LANDSCAPE
SHEET NAME	IR-1
SHEET	28
OF	55

\*When using larger GPM nozzles, beware of high friction loss in swing joints.

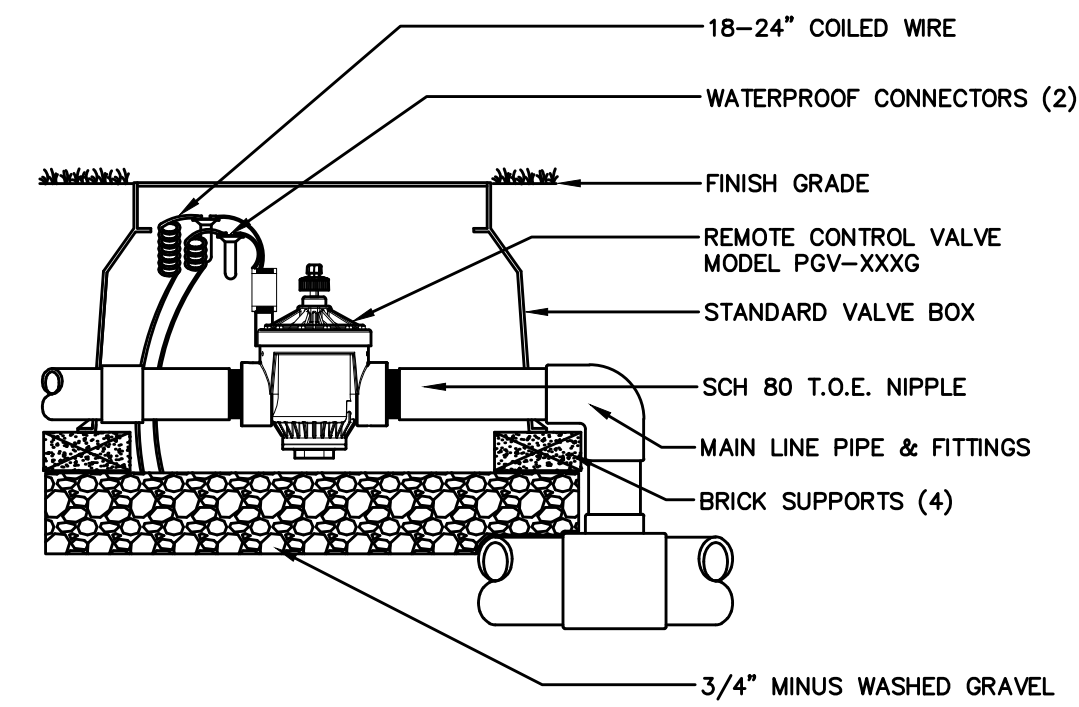


OPTIONS:  
 R = FACTORY INSTALLED RECLAIMED RUBBER COVER  
 CV = FACTORY INSTALLED DRAIN CHECK VALVE

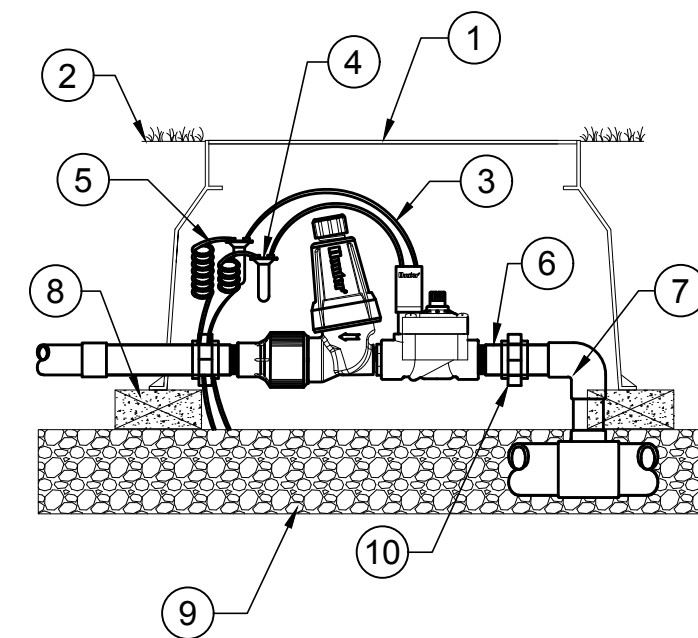
1 PGP ROTOR HEAD WITH PRO-FLEX TUBING  
 N.T.S.



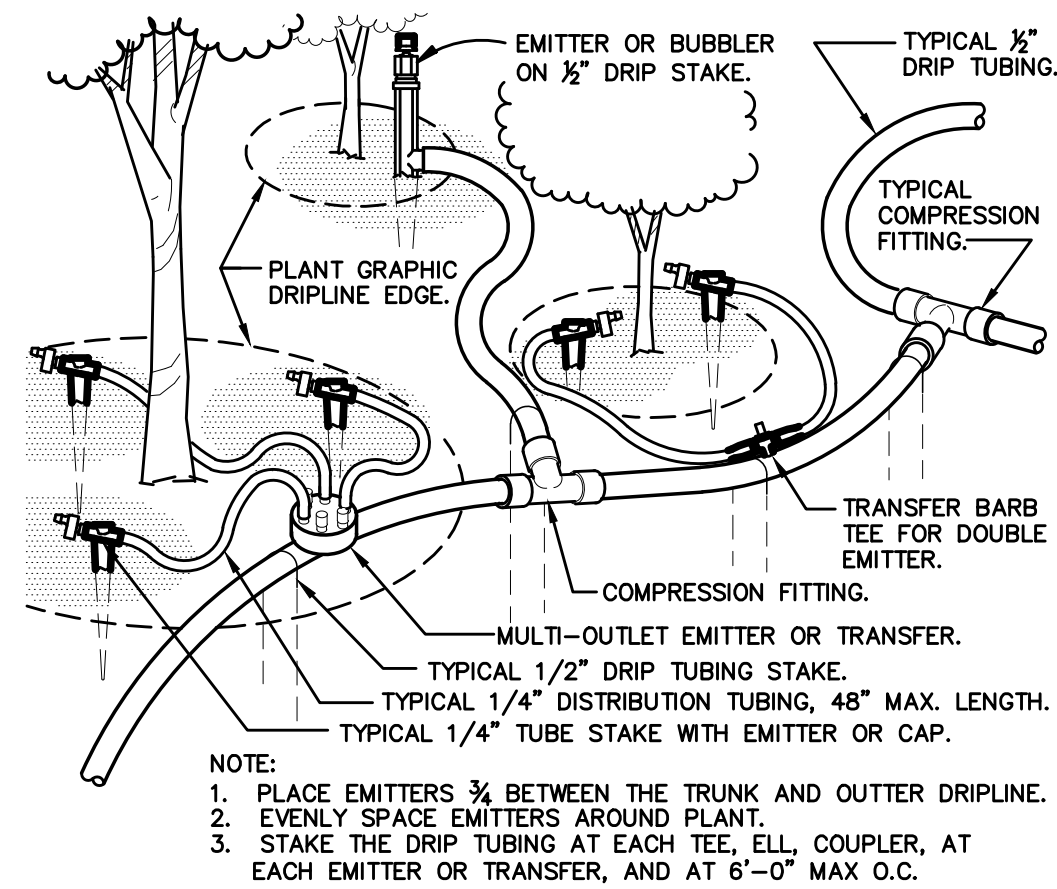
2 PROS-04 SPRAY HEAD WITH PRO-FLEX TUBING  
 N.T.S. FX-IR-HUNT-SPRA-20



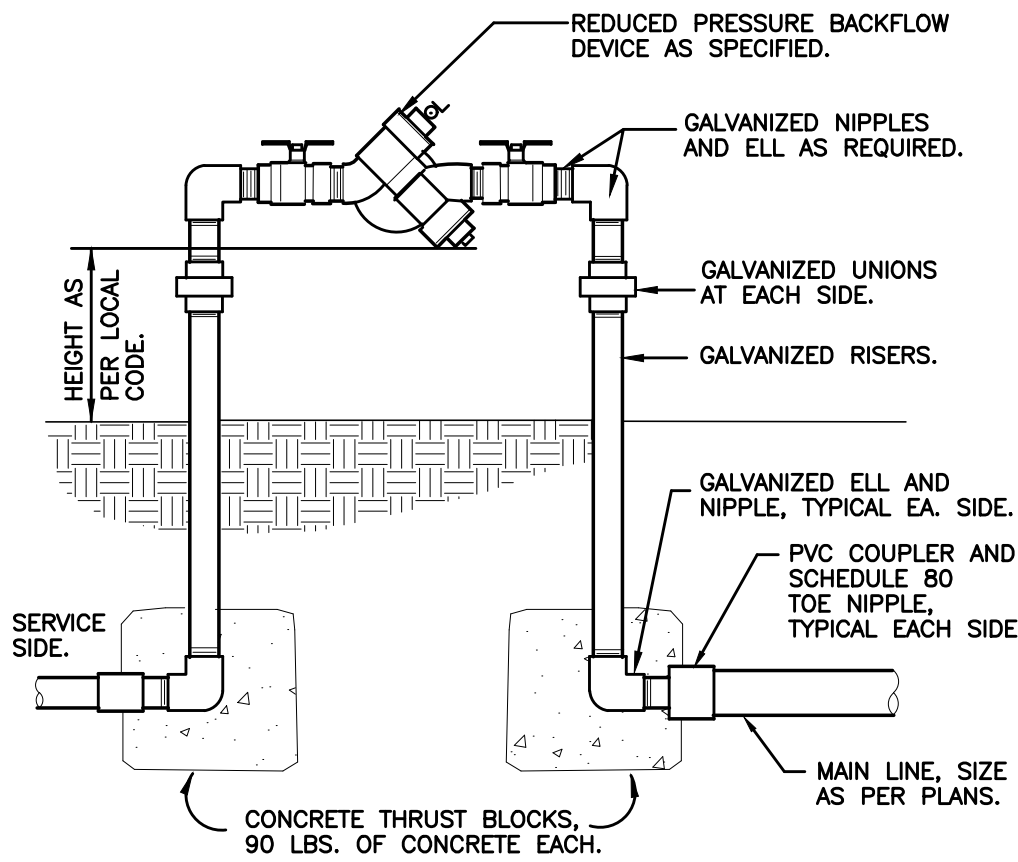
3 PGV GLOBE VALVE  
 N.T.S. FX-IR-HUNT-VALV-11



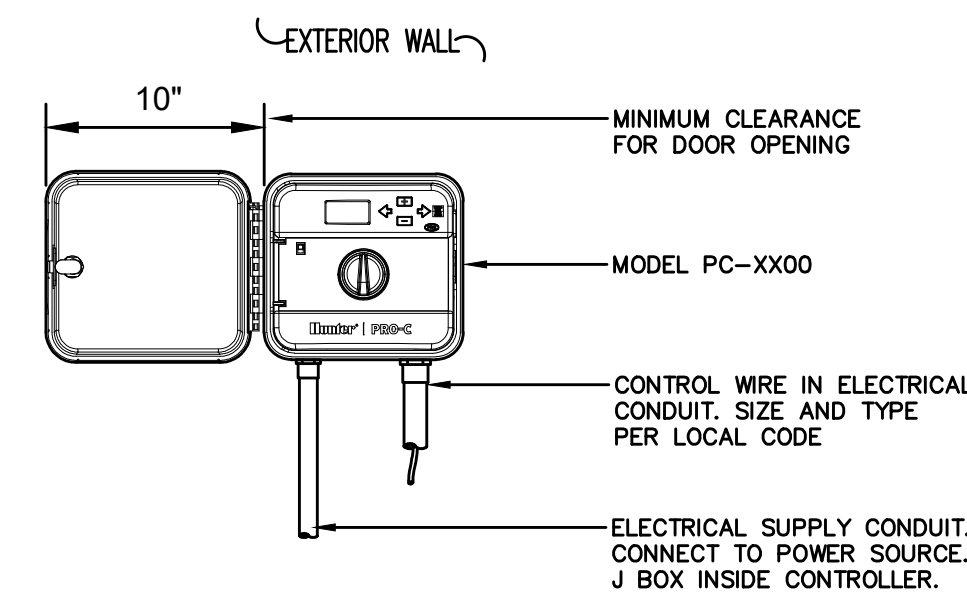
4 PCZ-101-1 DRIP ZONE KIT  
 N.T.S. FX-IR-HUNT-DRIP-07



5 TYPICAL DRIP TUBING  
 N.T.S. FX-IR-FX-DRIP-01

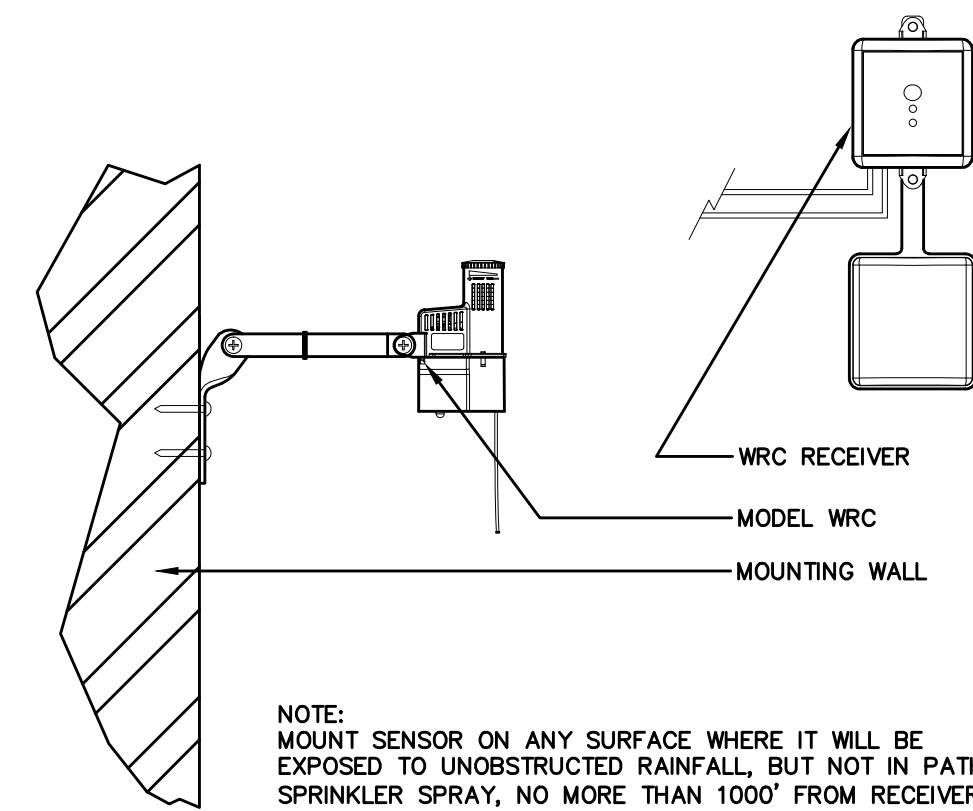


6 REDUCED PRESSURE BACKFLOW DEVICE  
 N.T.S. FX-IR-FX-BACK-03



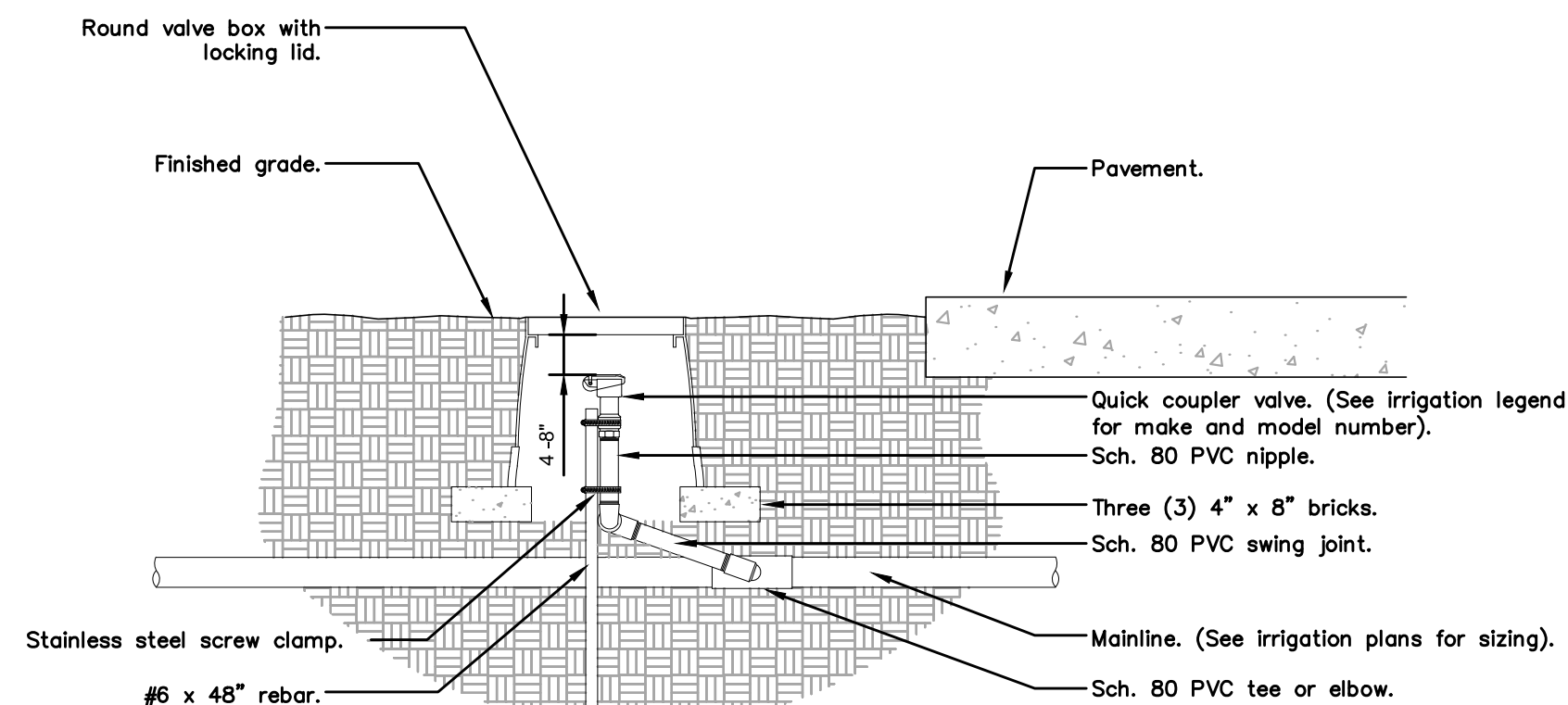
\*NOTE\* SPECIFY 4, 7, 10, 13, 16 STATION MODEL CONTROLLER. MOUNT CONTROLLER WITH LOD SCREEN AT EYE LEVEL. CONTROLLER SHALL BE HARD-WIRED TO GROUNDED 110 VAC SOURCE.

7 PRO-C CONTROLLER  
 N.T.S. FX-IR-HUNT-CONT-25



NOTE: MOUNT SENSOR ON ANY SURFACE WHERE IT WILL BE EXPOSED TO UNOBSTRUCTED RAINFALL, BUT NOT IN PATH OF SPRINKLER SPRAY, NO MORE THAN 1000' FROM RECEIVER UNIT. MOUNT RECEIVER UNIT NO FURTHER THAN 6' FROM CONTROLLER.

8 WIRELESS RAIN-CLICK  
 N.T.S. FX-IR-HUNT-SENS-17



Notes:  
 1- All threaded connections shall be installed using teflon tape.  
 2- Valve box shall be wrapped with a minimum 3 mil thick plastic and secured to the valve box using duct tape or electrical tape.  
 3- All quick couplers shall be installed a minimum of 18\"/>

9 QUICK COUPLER VALVE  
 N.T.S. FX-IR-FX-QUIC-01



1-800-347-4272  
<http://www.projectsolutions.siteone.com>

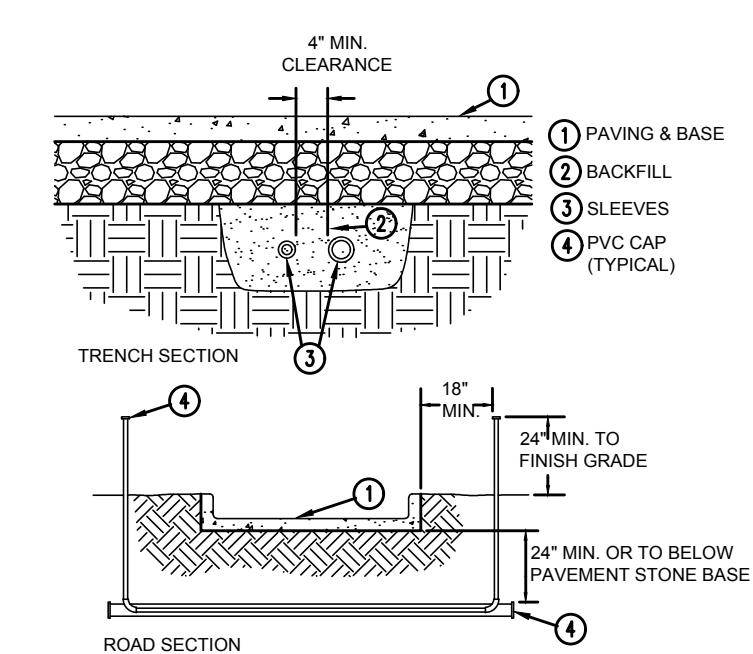
650 Stephenson Highway  
 Troy, Michigan 48083  
 Phone 248.588.2100  
 Fax 248.588.3528  
 www.Siteone.com  
 800.347.4272  
 Project Services Number:186492  
 Lakeland Community College Transfer Station  
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 Design Date: 05/08/19  
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DATE	REVISION	NO	CD	ISSUED FOR:	ISSUE DATE:	SCALE:	DESIGNED BY:	DRAWN BY:	CHECKED BY:
			5/30/19	AS SHOWN	RS	RS	CC		

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IRRIGATION DETAILS

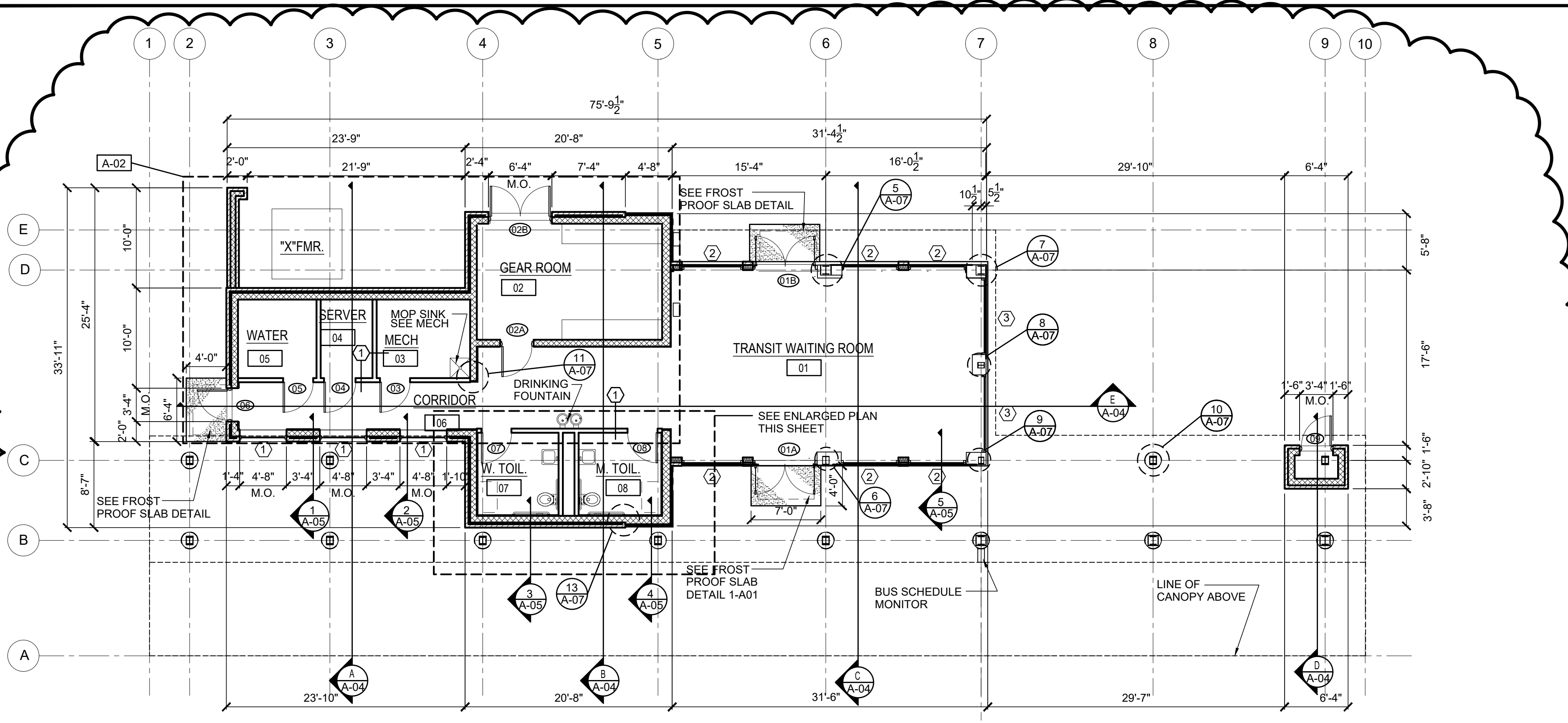


NOTES:  
 1- ALL PVC IRRIGATION SLEEVES TO BE CLASS 200 PIPE  
 2- ALL JOINTS TO BE SOLVENT WELDED AND WATERTIGHT.  
 3- WHERE THERE IS MORE THAN ONE SLEEVE, EXTEND THE SMALLER SLEEVE TO 24-INCHES MINIMUM ABOVE FINISH GRADE OR MARK LOCATION WITH 24\"/>

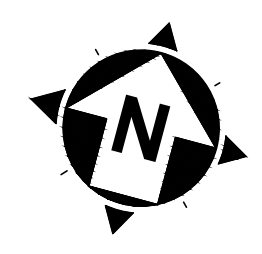
10 SLEEVING  
 N.T.S.

URBAN TREE FOUNDATION © 2014  
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PROJECT NO.	18050002
DISCIPLINE	LANDSCAPE
SHEET NAME	IR-2
SHEET	29
OF	55



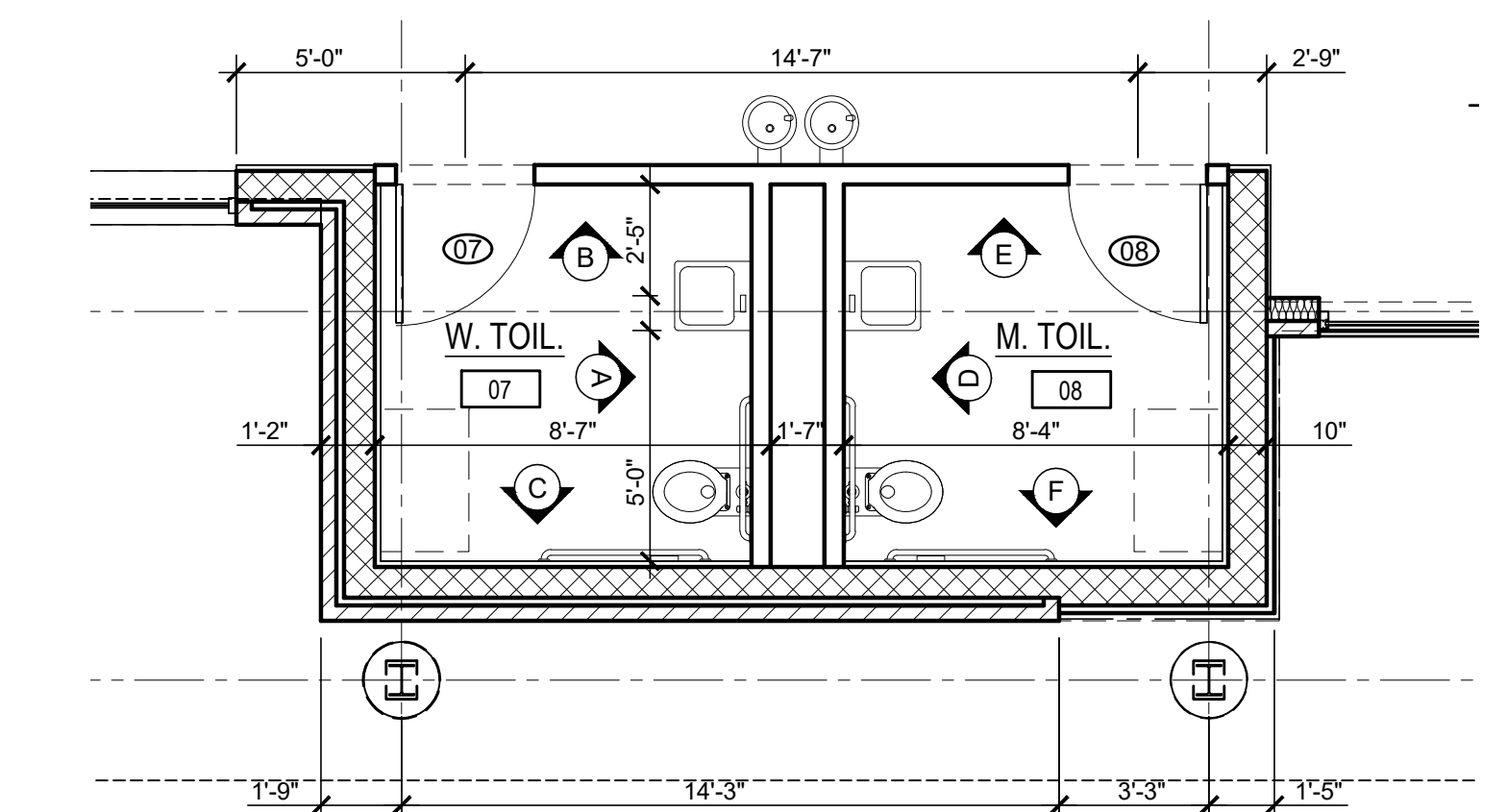
**FLOOR PLAN**  
SCALE: 1/8" = 1'-0"



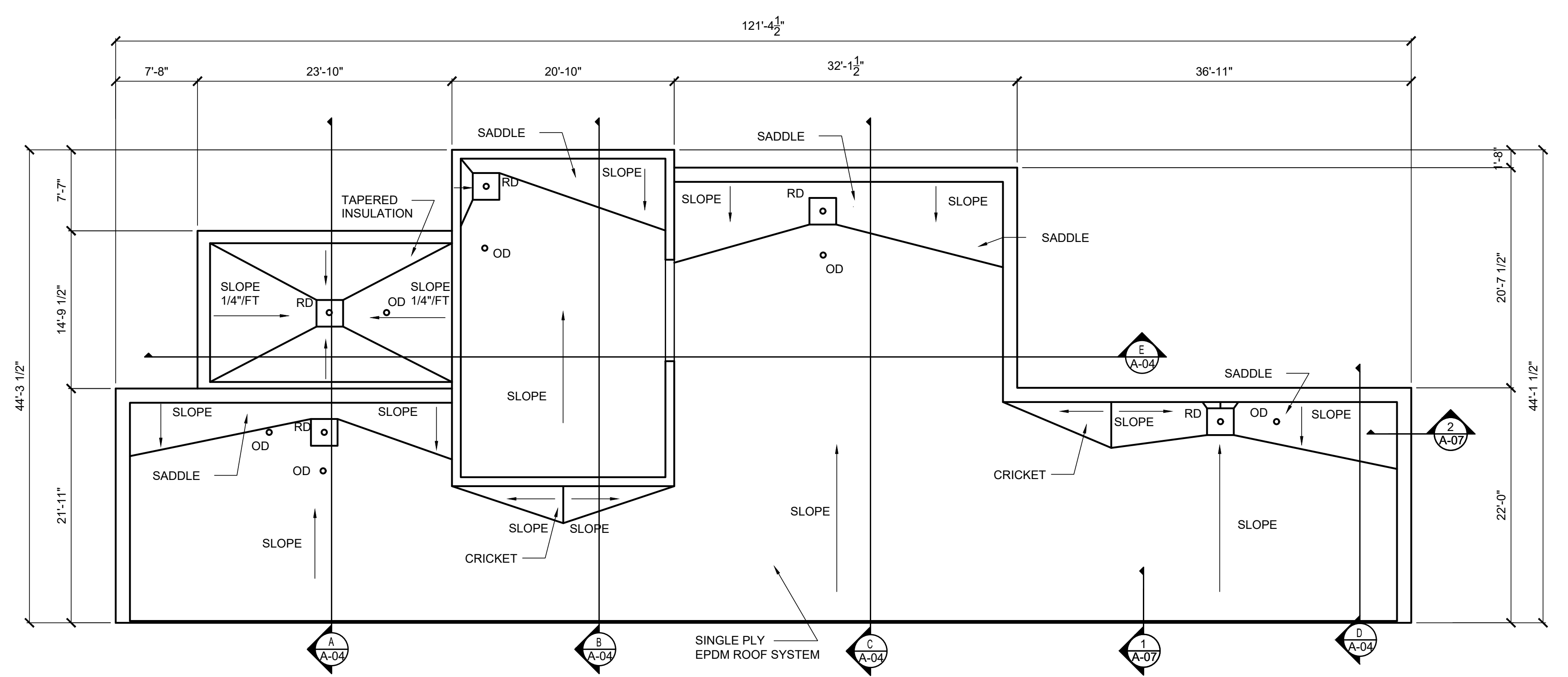
1 WALL TYPE: 3 5/8" 25 GA. MET. STUDS @ 16" O.C. TIGHT TO STEEL DECK. SOUND ATTENUATION BLANKET & 5/8" GYP. BD. BOTH SIDES W/ RUBBER BASE

**CODE DATA 2017 OBC**

CONSTRUCTION TYPE: II B - NON COMBUSTIBLE  
 OCCUPANCY CLASSIFICATION: A-3 ASSEMBLY (BUS TRANSFER STATION)  
 AREA: BUILDING AREA - 1,655 SQ FT  
 CANOPY AREA - 2,368 SQ FT  
 TOTAL AREA - 4,023 SQ FT  
 MAXIMUM FLOOR AREA ALLOWANCE PER OCCUPANT:  
 ASSEMBLY WITHOUT FIXED SEATS: 4.023SQ FT/15 SQ FT NET = 269 OCCUPANTS  
 BUILDING HEIGHT: ALLOWABLE - 75'-0" (SPRINKLED)  
 ACTUAL - 21'-6" (SPRINKLED)  
 STORIES ABOVE GRADE PLANE: ALLOWABLE - 3 STORIES  
 ACTUAL - 1 STORY  
 FIRE RESISTANCE RATING REQUIREMENTS (TYPE II B):  
 PRIMARY STRUCTURAL FRAME = 0  
 BEARING WALLS = 0  
 NONBEARING WALLS = 0  
 FLOOR CONSTRUCTION = 0  
 ROOF CONSTRUCTION = 0  
 FIRE SEPARATION DISTANCE X>30', FIRE RATING = 0  
 SECTION 903.2.1.3 GROUP A-3:  
 AUTOMATIC SPRINKLER IS REQUIRED WHERE THE FIRE AREA HAS AN OCCUPANT LOAD OF 300 OR MORE. SPRINKLER SYSTEM IS NOT REQUIRED BUT VOLUNTEERED BY OWNER.



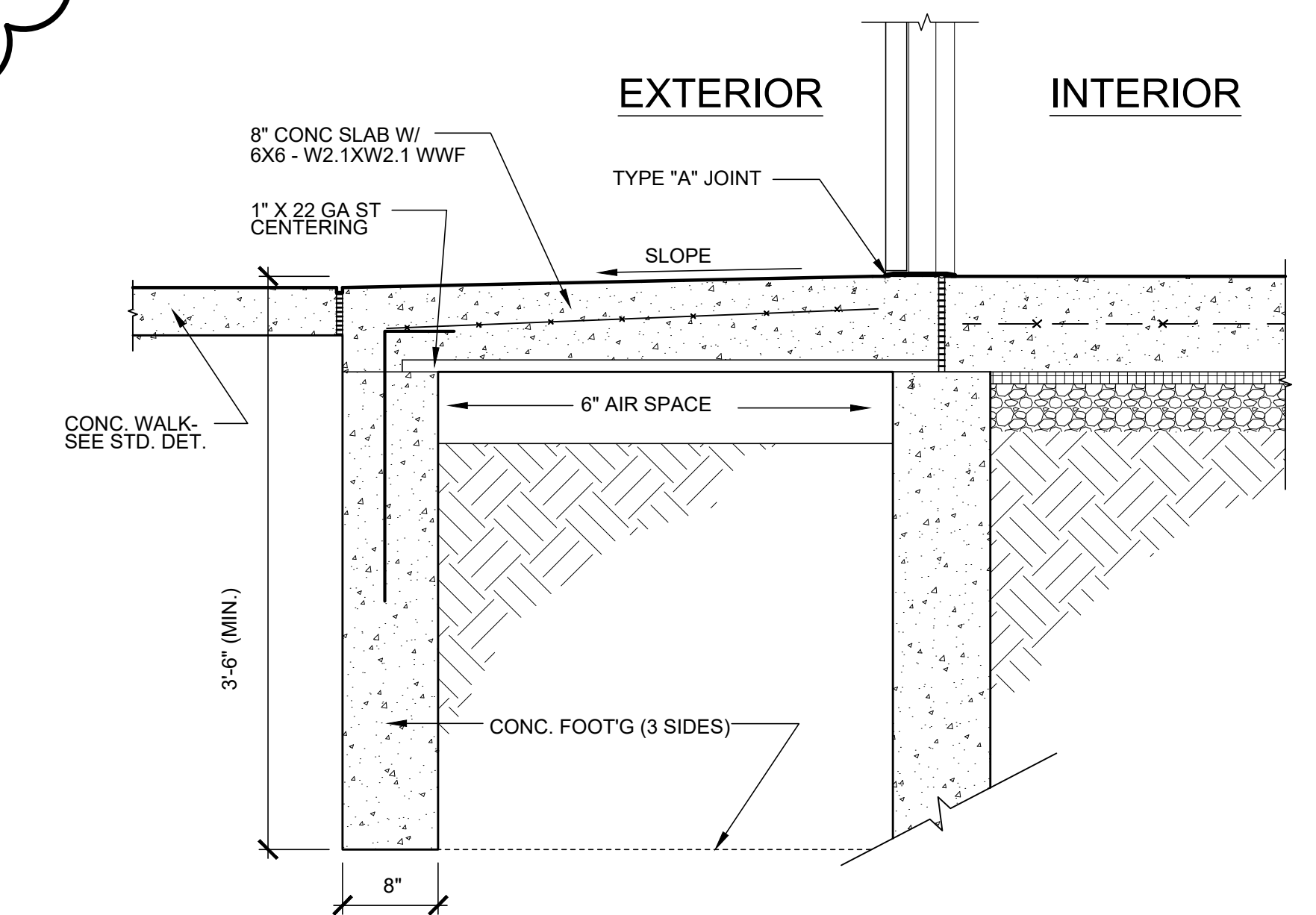
**ENLARGED TOILET PLAN**  
SCALE: 1/4" = 1'-0"



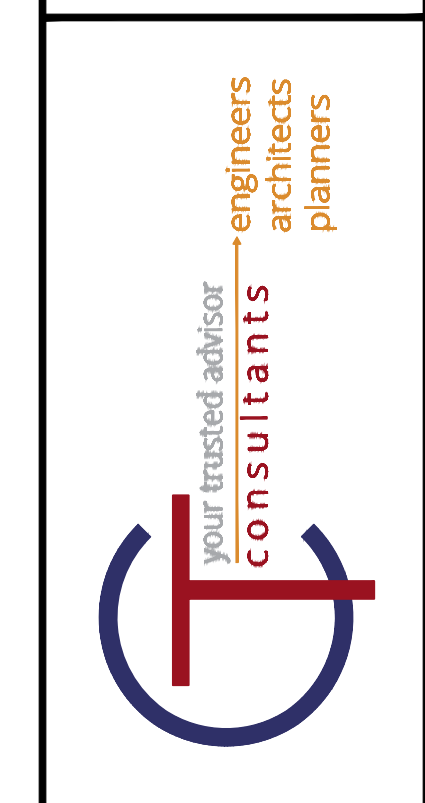
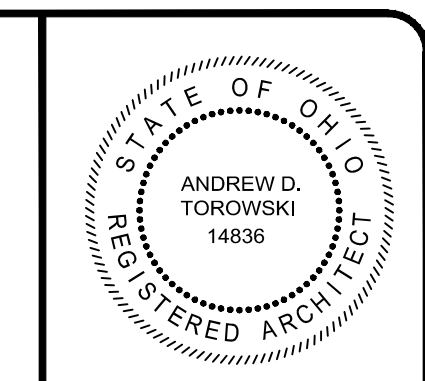
**ROOF PLAN**  
SCALE: 1/8" = 1'-0"



NOTE: STRUCTURAL STEEL IS SLOPED 1/4" / FT



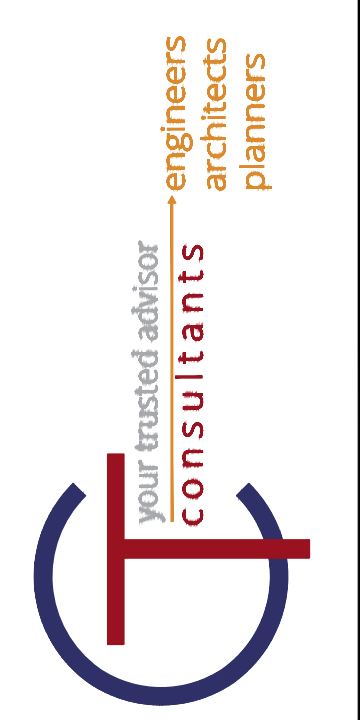
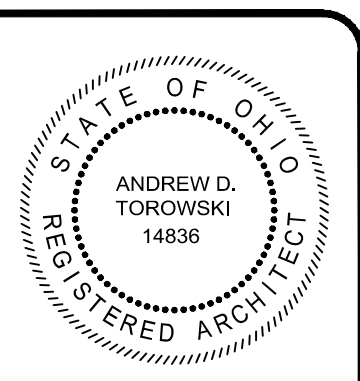
1 FROST PROOF SLAB DETAIL  
SCALE: 1" = 1'-0"



ISSUED FOR:	CD	NO	REVISION	DATE
AS SHOWN	8/5/2019			8/05/2019
DESIGNED BY:	ADT			
DRAWN BY:	ADT			
CHECKED BY:	ADT			

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**ARCHITECTURAL FLOOR AND ROOF PLAN CODE DATA**

PROJECT NO.	18050002
DISCIPLINE	ARCH
SHEET NAME	A-01
SHEET	30
OF	55

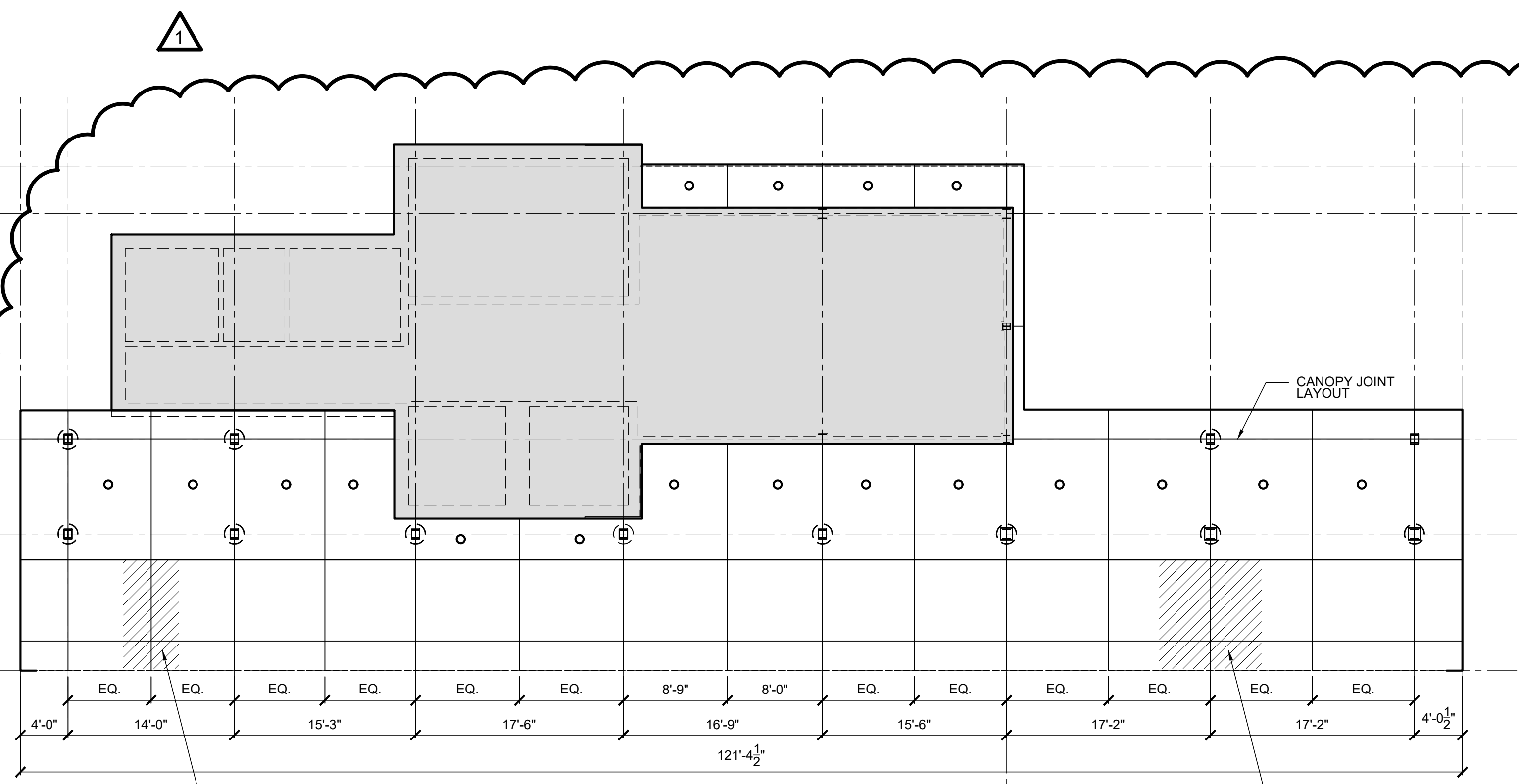


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AS SHOWN <td>8/5/2019 <td>1 <td>REBID REVISION <td>8/05/2019 </td></td></td></td>	8/5/2019 <td>1 <td>REBID REVISION <td>8/05/2019 </td></td></td>	1 <td>REBID REVISION <td>8/05/2019 </td></td>	REBID REVISION <td>8/05/2019 </td>	8/05/2019
DESIGNED BY: <td>ADT <td></td> <td></td> <td></td> </td>	ADT <td></td> <td></td> <td></td>			
DRAWN BY: <td>ADT <td></td> <td></td> <td></td> </td>	ADT <td></td> <td></td> <td></td>			
CHECKED BY: <td>ADT <td></td> <td></td> <td></td> </td>	ADT <td></td> <td></td> <td></td>			

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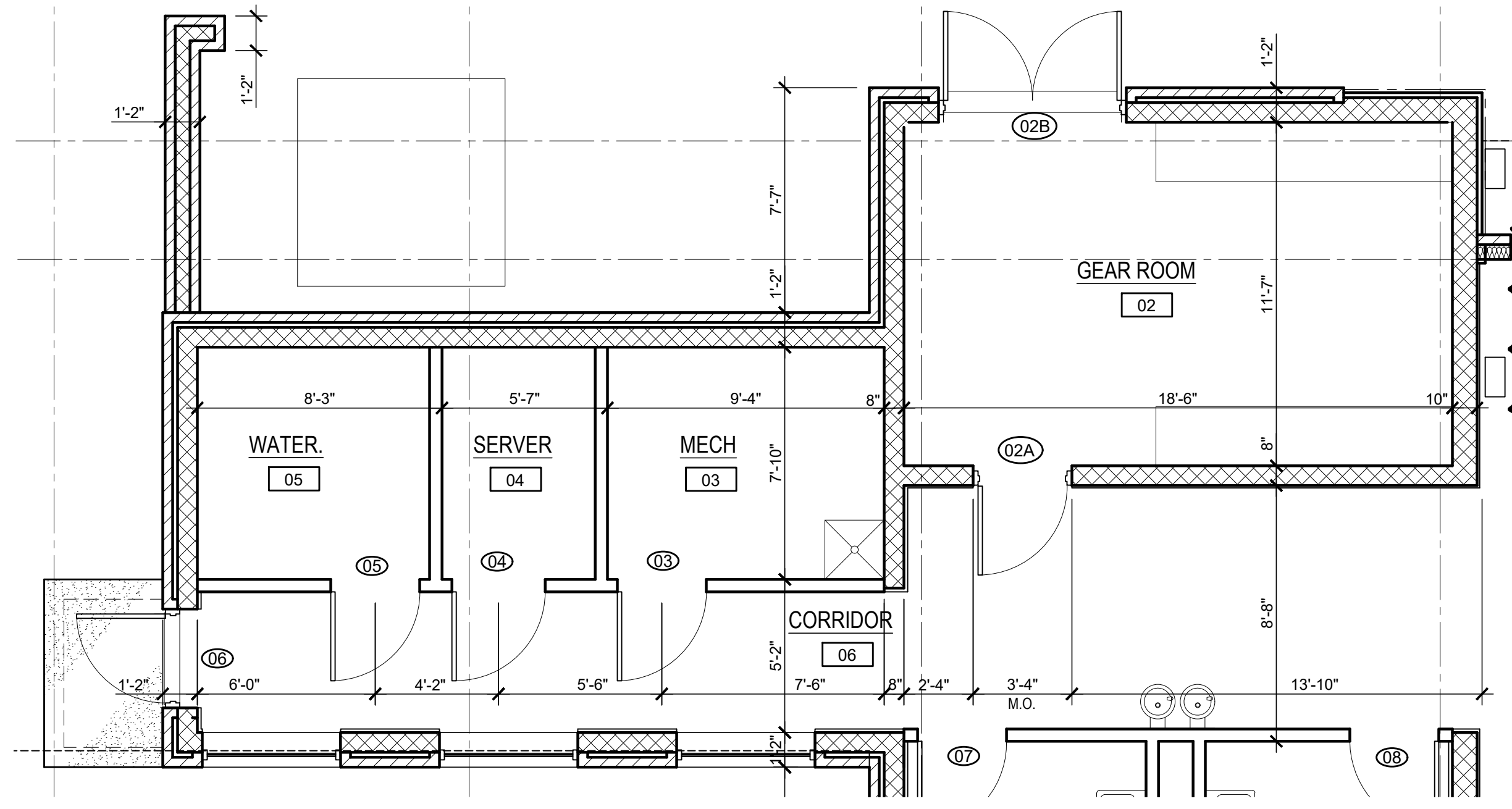
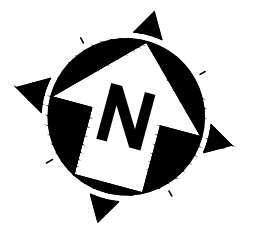
**REFLECTED CEILING PLAN & ENLARGED CORRIDOR PLAN**

PROJECT NO.	18050002
DISCIPLINE	ARCH
SHEET NAME	A-02
SHEET	31
OF	55

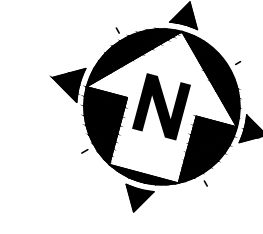


PANTOGRAPH LOCATION COORDINATE EXACT LOCATION W/ PROTERRA CONTRACTOR

**CANOPY PLAN**  
SCALE: 1/8" = 1'-0"



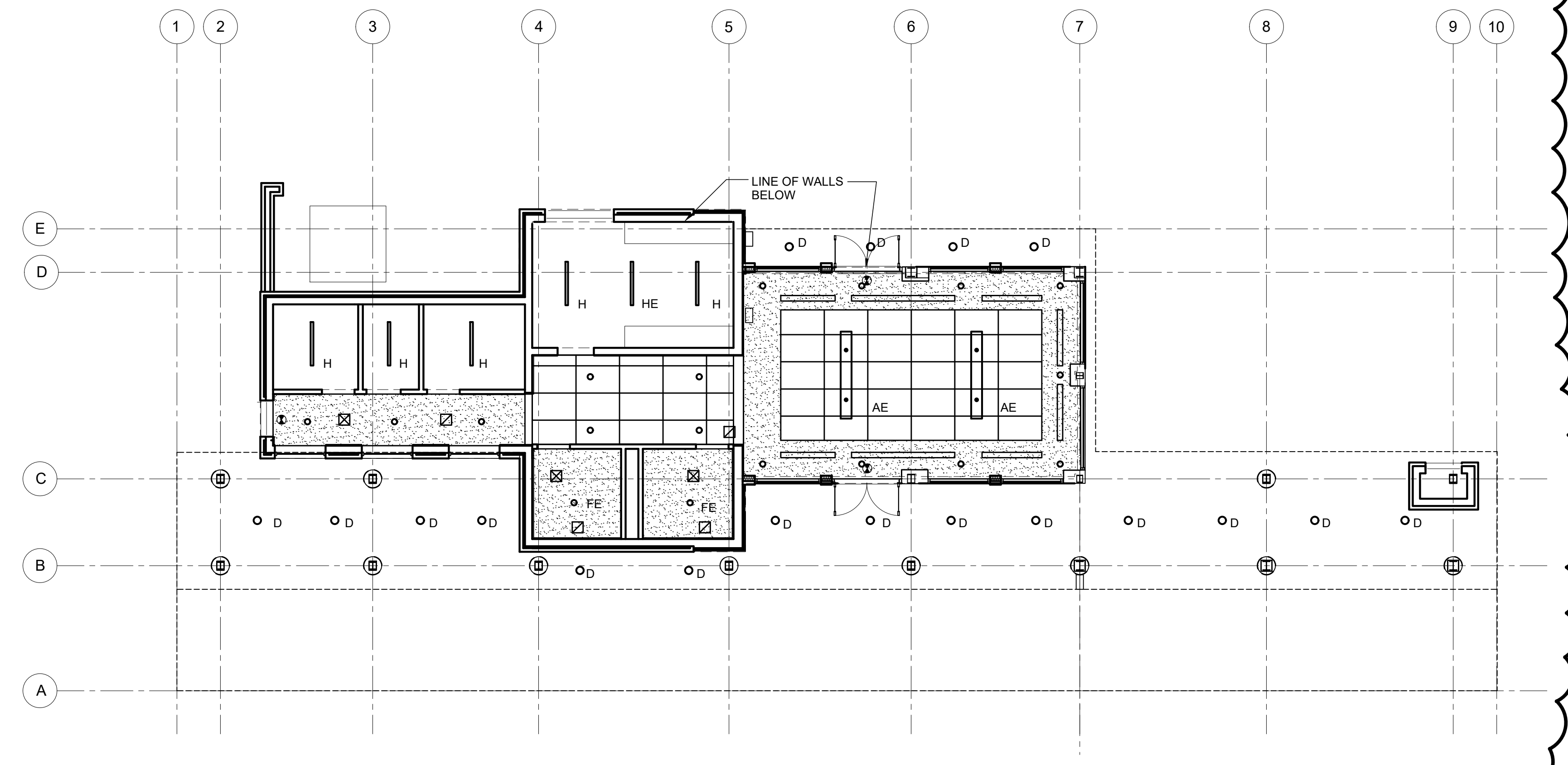
**ENLARGED PLAN**  
SCALE: 1/4" = 1'-0"



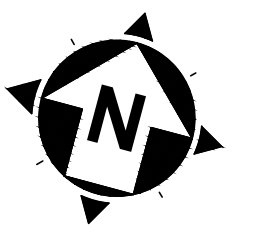
**LEGEND**

- 30" X 48" SUSPENDED CEILING GRID SYSTEM
- PAINTED GYPSUM BD.
- RECESSED CAN LIGHT
- PENDENT FIXTURE
- LINEAR DIFFUSER
- S.A. GRILLE
- R.A. GRILLE
- EXIT LIGHT

- GYPSUM BOARD METAL SUSPENSION SYSTEMS AS MFG BY THE UNITED STATES GYPSUM COMPANY (USG) OR APPROVED EQUAL.
- PERFORMANCE REQUIREMENTS: FABRICATE AND INSTALL SYSTEMS AS INDICATED BUT NOT LESS THAN THAT REQUIRED TO COMPLY WITH ASTM C754 UNDER THE FOLLOWING CONDITIONS: INTERIOR SUSPENDED CEILINGS AND SOFFITS. MAXIMUM DEFLECTION OF 1/360 OF DISTANCE BETWEEN METAL SUPPORTS.
- CEILING SUPPORT MATERIAL:
  - A. HANGER ANCHORAGE DEVICES: SCREWS, CLIPS, BOLTS OR OTHER DEVICES COMPATIBLE WITH INDICATED STRUCTURAL ANCHORAGE FOR CEILING HANGERS AND WHOSE SUITABILITY HAS BEEN PROVEN THROUGH STANDARD CONSTRUCTION PRACTICES OR BY CERTIFIED TEST DATA.
  - B. HANGERS: STEEL WIRE OR RODS, SIZES TO COMPLY WITH REQUIREMENTS OF ASTM C754 FOR CEILING OR WIRE: ASTM A641, SOFT, CLASS 1 GALVANIZED RODS AND FLATS: MILD STEEL COMPONENTS. GALVANIZED OR PAINTED WITH RUST INHIBITIVE PAINT FOR INTERIOR WORK.
  - C. FRAMING SYSTEM: MAIN RUNNERS: COLD ROLLED, "C" SHAPED STEEL CHANNELS, 16 GAUGE MINIMUM FINISH: GALVANIZED OR PAINTED WITH RUST INHIBITIVE PAINT
  - E. CROSS FURRING: HAT-SHAPED STEEL FURRING CHANNELS, ASTM C645, 1/2 INCH HIGH, 25 GAUGE, GALVANIZED
  - F. FURRING ANCHORAGE: 16 GAUGE GALVANIZED WIRE TIES MANUFACTURER'S STANDARD WIRE TYPE CLIPS, BOLTS, NAILS OR SCREWS RECOMMENDED BY FURRING MANUFACTURER AND COMPLYING WITH ASTM C754.
  - G. METAL SUPPORT INSTALLATION: SECURE HANGERS OR RODS ATO STRUCTURAL SUPPORT BY CONNECTING DIRECTLY TO STRUCTURE WHERE POSSIBLE. OTHERWISE CONNECT TO INSERTS, CLIPS OR OTHER ANCHORAGE DEVICES OR FASTENER, AS INDICATED. SPACE MAIN RUNNERS, HANGERS AND FURRING ACCORDING TO REQUIREMENTS OF ASTM C754
  - H. WHERE SPACING OF STRUCTURAL MEMBERS, OR WIDTHS OR OTHER DUCT EQUIPMENT, PREVENTS REGULAR SPACING OF HANGERS, PROVIDE SUPPLEMENTAL HANGERS AND SUSPENSION MEMBERS AND REINFORCE NEAREST AFFECTED HANGERS TO SPAN EXTRA DISTANCE.



**REFLECTED CEILING PLAN**  
SCALE: 1/8" = 1'-0"



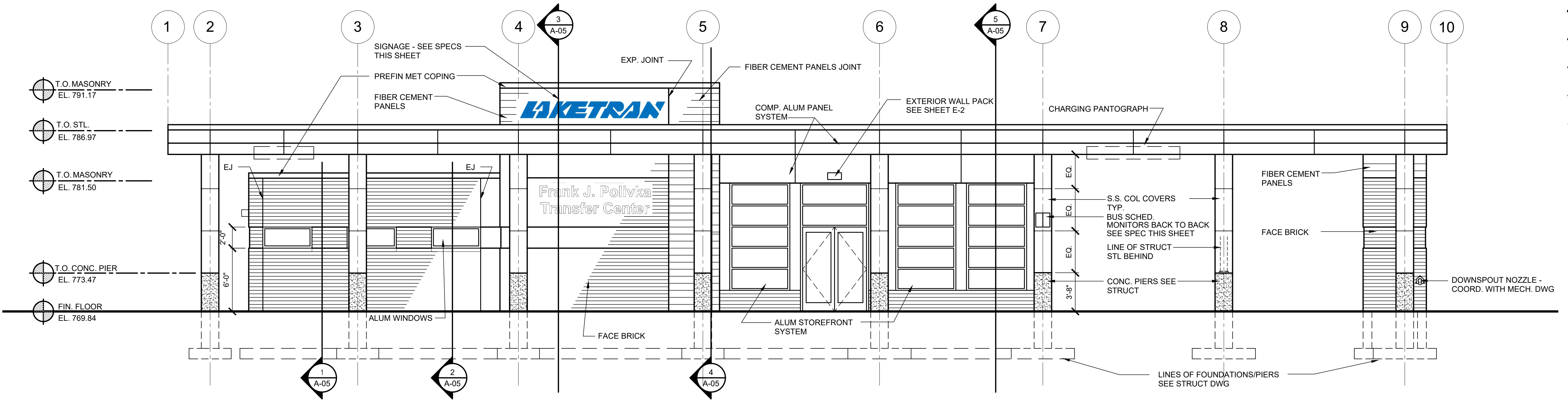
NO	REVISION	DATE
1	REBID REVISION	8/05/2019

ISSUED FOR	ISSUE DATE	SCALE	DESIGNED BY	DRAWN BY	CHECKED BY
AS SHOWN	8/5/2019	AS SHOWN	ADT	ADT	ADT

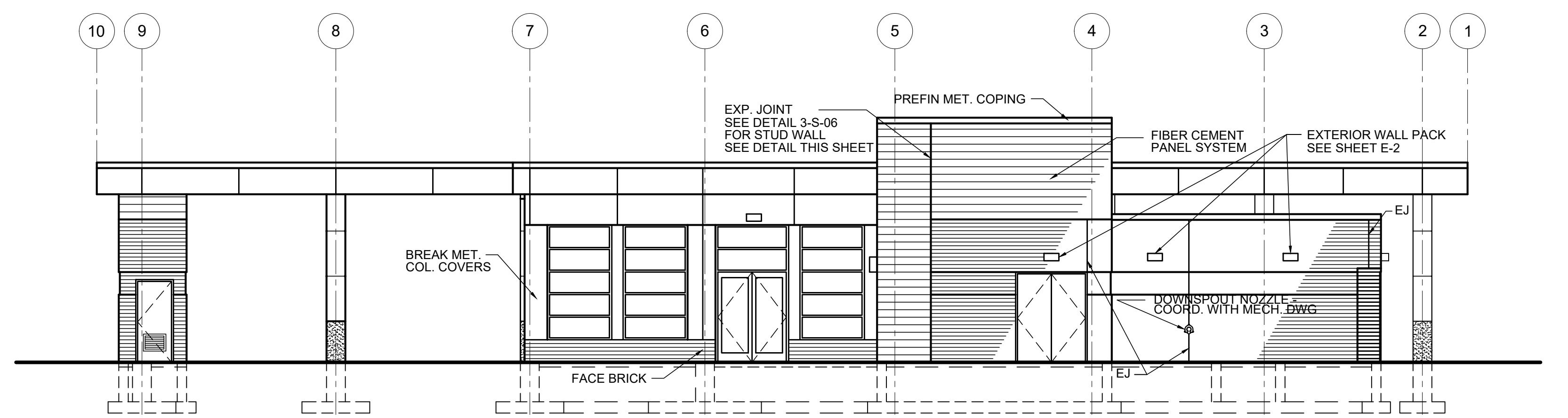
PROJECT NO.	18050002
DISCIPLINE	ARCH
SHEET NAME	A-03
SHEET	32
OF	55

**LAKELAND TRANSFER CENTER**  
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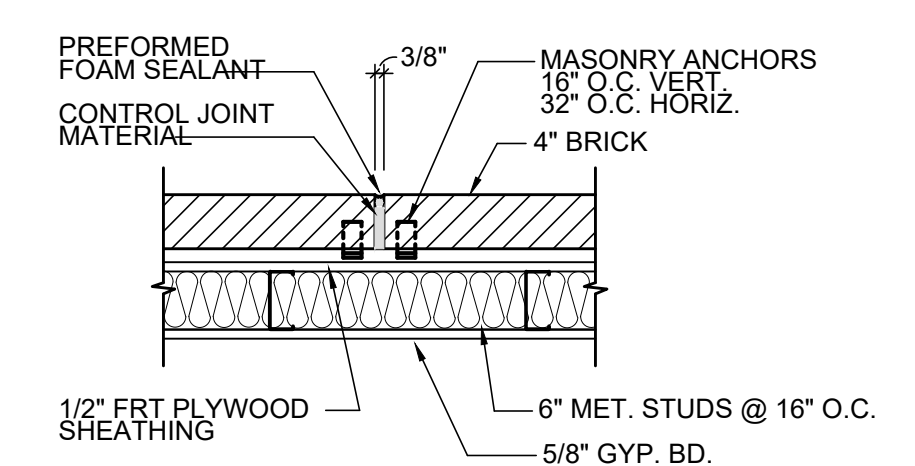
**ARCHITECTURAL ELEVATIONS & SIGNAGE**



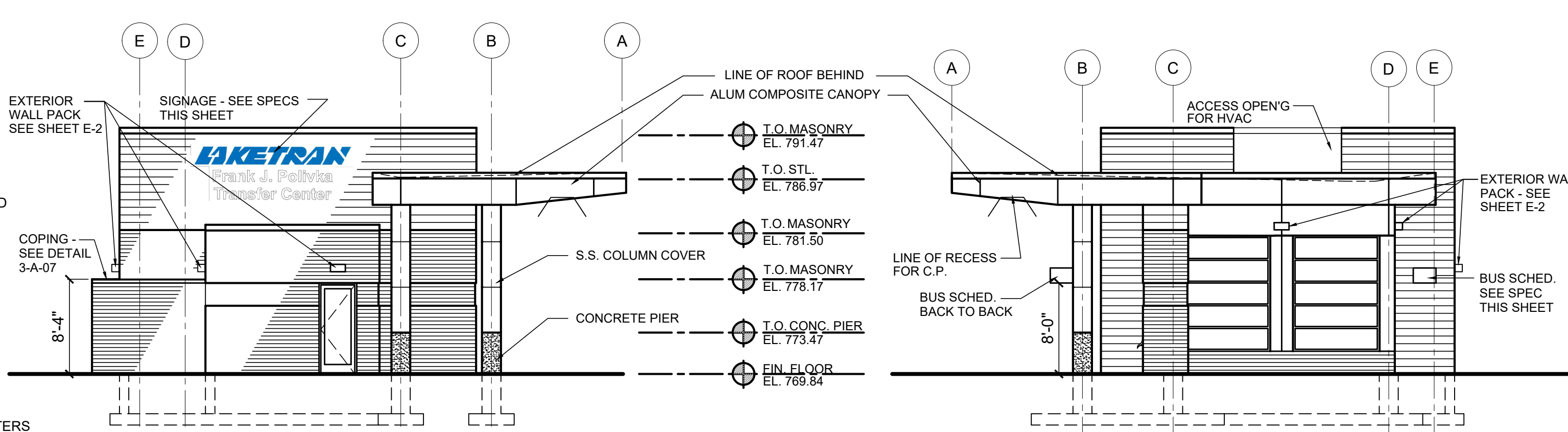
**SOUTH ELEVATION**  
 SCALE: 3/16" = 1'-0"



**NORTH ELEVATION**  
 SCALE: 1/8" = 1'-0"



**STUD-MAS. CONTROL JOINT DETAIL**  
 SCALE: 1" = 1'-0"



**WEST ELEVATION**  
 SCALE: 1/8" = 1'-0"

**EAST ELEVATION**  
 SCALE: 1/8" = 1'-0"

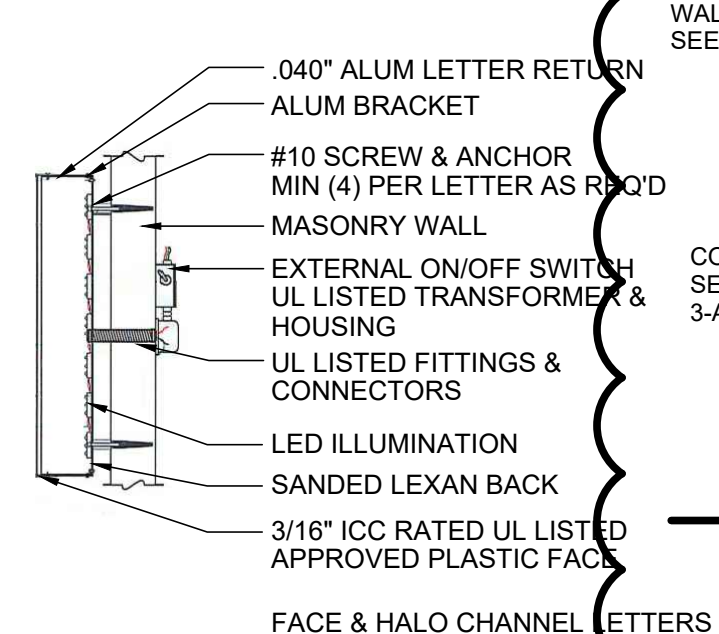
**BUS SCHEDULE MONITORS SPEC (TYP. OF 4)**  
 BUS SCHEDULE MONITORS AS MFG BY FLEETWATCH SIGNS.COM OR APPROVED EQUAL  
 LOW POWER FULL MATRIX LED SIGNS  
 SCROLLING ROUTE DESCRIPTION  
 24 X 2 CHARACTER DISPLAYS  
 SECURITY KEYED LATCHES  
 PRINTED LEXAN PANEL  
 FULL COLOR WITH GRAPHICS, LOGOS, PHOTOS, ETC.  
 ADVERTISING PANELS, SPEAKER  
 ADA BUTTON ON INTERIOR  
 QUICK CHANGE CLEAR PROTECTIVE OVERLAY PANEL  
 HARD WIRED, SHELTER MOUNTED, W/ WI-FI NETWORK CAPABLE

**"LAKETRAN" FACE & HALO LIT CHANNEL LETTERS**  
 3/16" 7328 WHITE ACRYLIC FACES W/ BLUE TRANSLUCENT VINYL OVERLAY  
 1" WHITE TRIM CAP  
 5" X 0.04" WHITE ALUM. RETURNS  
 INTERNALLY ILLUMINATED W/ 6500 WHITE 12V LED'S  
 CLEAR LEXAN BACK FOR HALO LIGHTING EFFECT  
 MOUNTED 1.5" FROM BUILDING SURFACE ON SPACERS

**"FRANK...CENTER" FACE & HALO LIT CHANNEL LETTERS**  
 3/16" 7328 WHITE ACRYLIC FACES  
 1" BLACK TRIM CAP  
 5" X 0.04" BLACK ALUM. RETURNS  
 INTERNALLY ILLUMINATED W/ 6500 WHITE 12V LED'S  
 CLEAR LEXAN BACK FOR HALO LIGHTING EFFECT  
 MOUNTED 1.5" FROM BUILDING SURFACE ON SPACERS

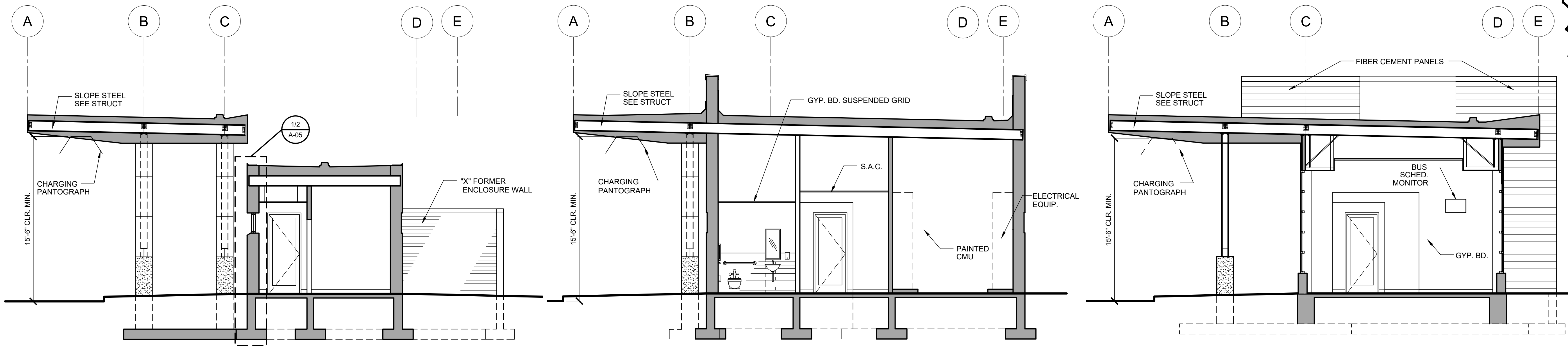
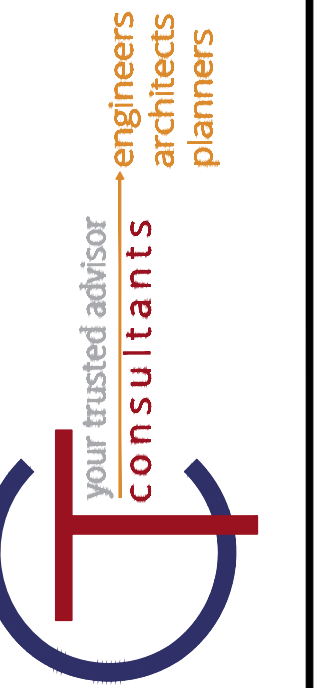
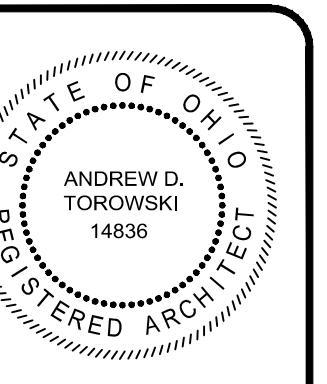


**FACE & HALO LIT CHANNEL LETTERS**  
 SCALE: 1/2" = 1'-0"



**FACE & HALO CHANNEL LETTERS**

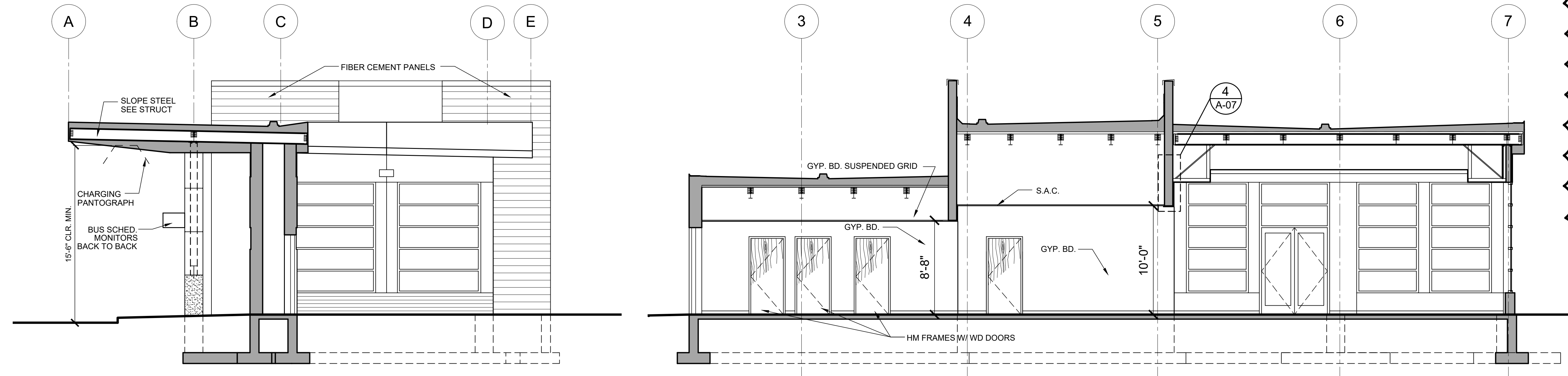




**A** CROSS SECTION  
A-04 SCALE: 3/16" = 1'-0"

**B** CROSS SECTION  
A-04 SCALE: 3/16" = 1'-0"

**C** CROSS SECTION  
A-04 SCALE: 3/16" = 1'-0"



**D** CROSS SECTION  
A-04 SCALE: 3/16" = 1'-0"

**E** LONGITUDINAL SECTION  
A-04 SCALE: 3/16" = 1'-0"

NO.	REVISION	DATE
1	REBID REVISION	8/05/2019

ISSUED FOR:	ISSUE DATE:	SCALE:	DESIGNED BY:	DRAWN BY:	CHECKED BY:
CD	8/5/2019	AS SHOWN	ADT	ADT	ADT

**LAKELAND TRANSFER CENTER**  
LAKELAND COMMUNITY COLLEGE  
7601 CLOCKTOWER DR., KIRTLAND, OH 44094

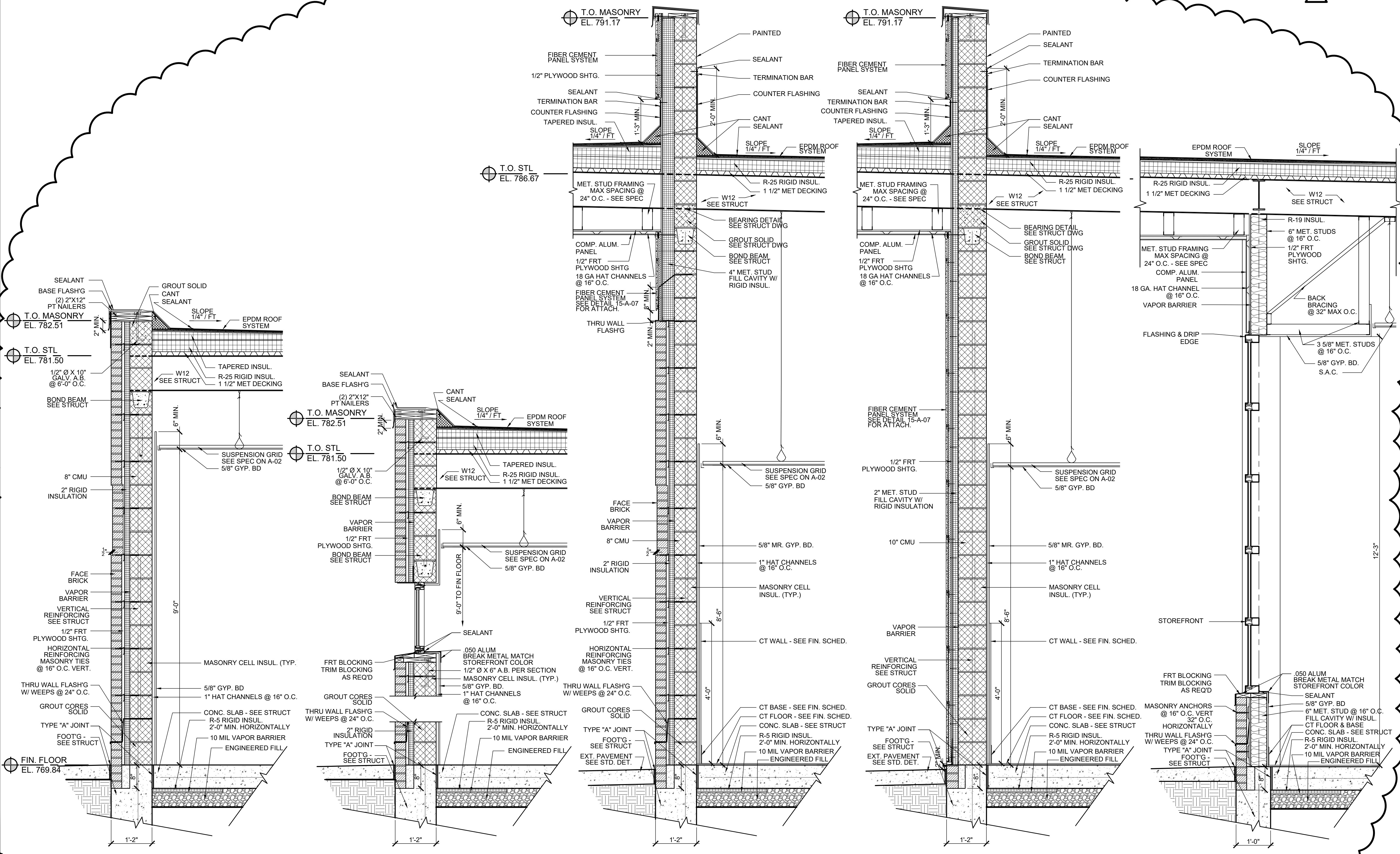
**BUILDING SECTIONS**

PROJECT NO.	<b>18050002</b>
DISCIPLINE	<b>ARCH</b>
SHEET NAME	<b>A-04</b>
SHEET	<b>33</b>
OF	<b>55</b>

DATE	NO.	REVISION
8/05/2019	1	ISSUED FOR PERMIT

**LAKELAND TRANSFER CENTER**  
**LAKELAND COMMUNITY COLLEGE**  
 7601 CLOCKTOWER DR., KIRTLAND, OH 44094

PROJECT NO.	18050002
DISCIPLINE	ARCH
SHEET NAME	A-05
SHEET	34
OF	55



**1 WALL SECTION**  
 A-05 SCALE: 3/4" = 1'-0"

**2 WALL SECTION**  
 A-05 SCALE: 3/4" = 1'-0"

**3 WALL SECTION**  
 A-05 SCALE: 3/4" = 1'-0"

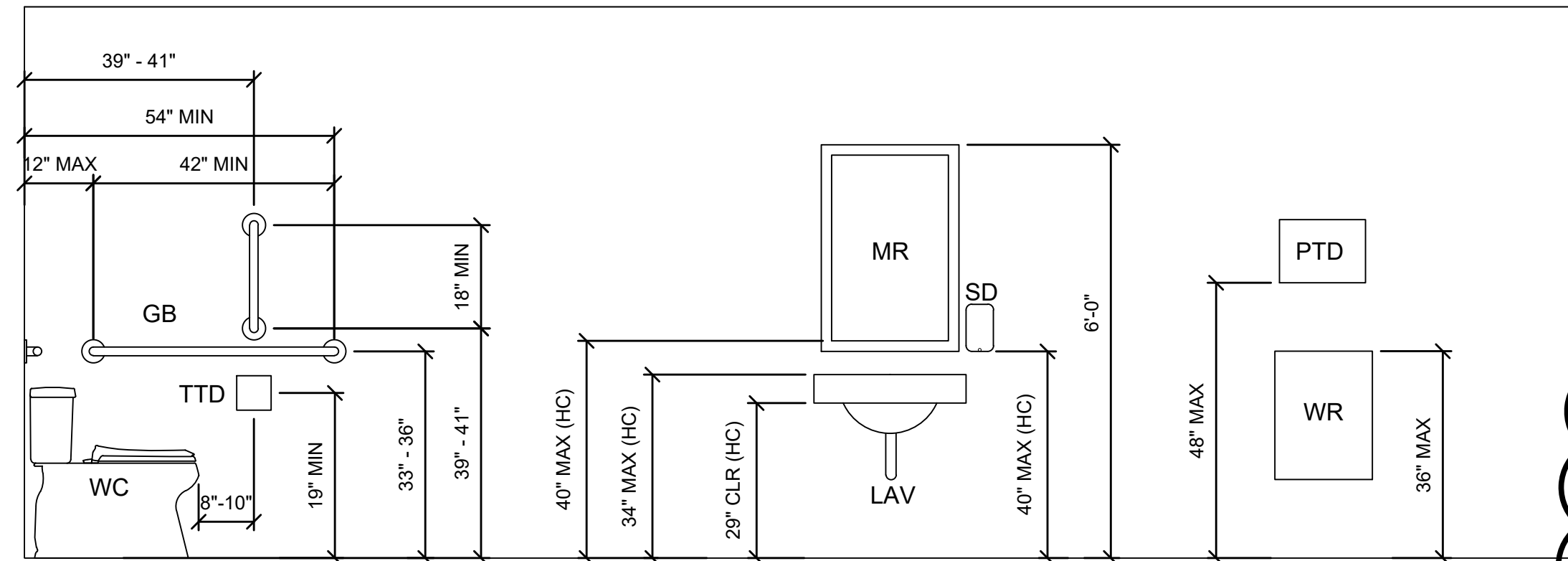
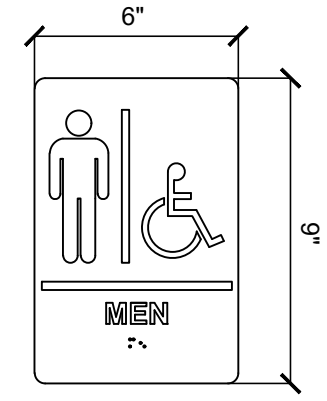
**4 WALL SECTION**  
 A-05 SCALE: 3/4" = 1'-0"

**5 WALL SECTION**  
 A-05 SCALE: 3/4" = 1'-0"

**TOILET ROOM ACCESSORIES-LEGEND**

- ① → 24"x36" FLAT MIRROR (SURFACE MOUNTED)
- ② → SOAP DISPENSER/ SURFACE MOUNT
- ③ → TOILET PAPER DISPENSER SURFACE MOUNT
- ④ → 36" GRAB BARS
- ⑤ → PAPER TOWEL AND WASTE RECEPTILE
- ⑥ → 42" GRAB BARS
- ⑦ → BABY CHANGING STATION - KOALA KB 200 - SEE SPEC. SEE FLOOR PLANS FOR LOCATION, TYP. OF 4.
- ⑧ → 18" GRAB BARS

ADA RESTROOM SIGN AS MFG BY "KAPCO" OR APPROVED EQUAL. BROWN BACKGROUND W/ WHITE LETTERS. PROVIDE GRADE 2 BRAILLE. MECHANICALLY FASTEN TO EXTERIOR WALL.  
 NOTE: WOMEN'S ROOM SIGN SIMILAR



**TOILET ROOM FIXTURE MOUNTING HEIGHT DETAIL**  
 SCALE: 1/2" = 1'-0"

**ROOM FINISH SCHEDULE**

NUMBER	ROOM	FINISHES						REMARKS
		FLOOR	BASE	NORTH	EAST	SOUTH	WEST	
<b>LAKETRAN TRANSFER CENTER</b>								
01	TRANSIT WAITING ROOM	F2	B1	PT1	PT1	PT2	C2/C3	-
02	GEAR ROOM	F1	PT2	PT2	PT2	PT2	C1	-
03	MECHANICAL ROOM	F1	PT1	PT1	PT2	PT2	C1	-
04	SERVER ROOM	F1	PT1	PT2	PT1	PT1	C1	-
05	WATER ROOM	F1	PT1	PT2	PT2	PT1	C1	-
06	CORRIDOR	F2	B1	PT2	PT2	PT1	-	C2/C3 8'-8" / 10'-0"
07	MEN'S TOILET ROOM	F2	B1	C/PT1	C/PT1	C/PT1	C2	8'-6"
08	WOMEN'S TOILET ROOM	F2	B1	C/PT1	C/PT1	C/PT1	C2	8'-6"

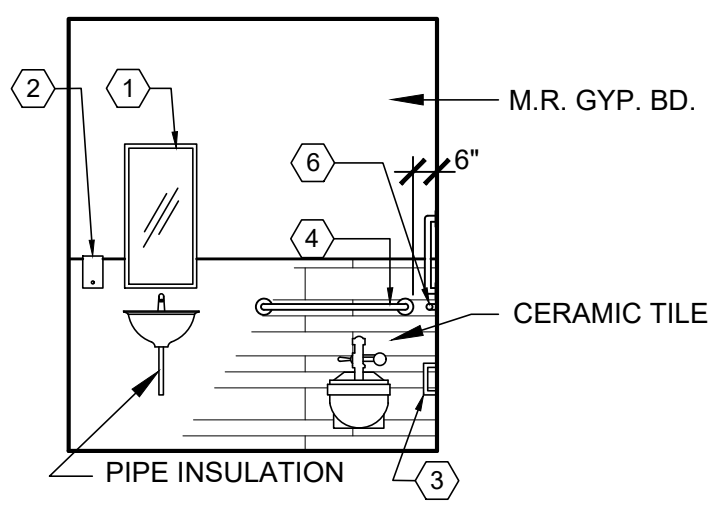
  

FLOOR	BASE	WALLS	CEILING
F1	SEALED CONCRETE	B1	CERAMIC TILE
F2	CERAMIC TILE	B1	CERAMIC TILE
		CT	CERAMIC TILE
		ST	STOREFRONT
		PT1	PAINTED GYP. BD.
		PT2	PAINTED CMU
		C1	EXPOSED CEILING (PNT)
		C2	GYP BD (PAINTED)
		C3	S.A.C.

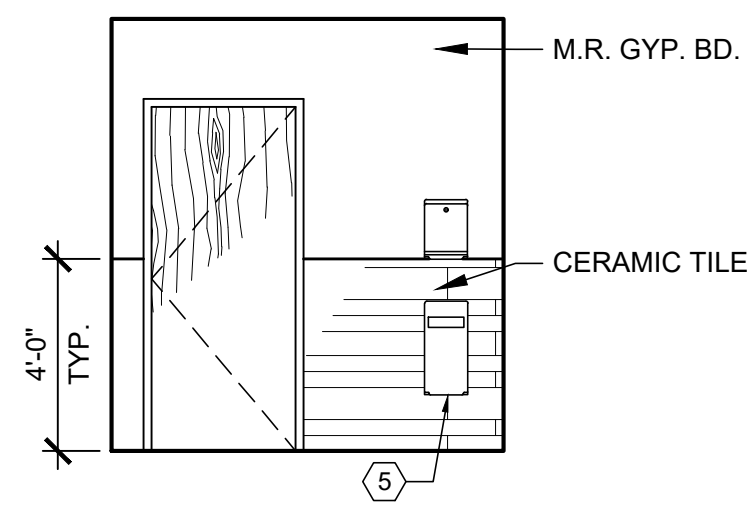
**DOOR SCHEDULE**

OPENING NUMBER	DOOR				THICKNESS	FRAME				REMARKS
	MATERIAL	TYPE	WIDTH	HEIGHT		MATERIAL	TYPE	HEAD	JAMB	
<b>LAKETRAN TRANSFER CENTER</b>										
01A	AL	D2	(2) 36"	96"	1-3/4"	AL	F1	-	-	6
01B	AL	D2	(2) 36"	96"	1-3/4"	AL	F1	-	-	6
02A	WD	D1	36"	86"	1-3/4"	HM	F2	H4	J4	3
02B	HM	D1	(2) 36"	94"	1-3/4"	HM	F3	H1	J1	2
03	HM	D1	36"	86"	1-3/4"	HM	F2	H2	J2	1
04	WD	D1	36"	86"	1-3/4"	HM	F2	H2	J2	1
05	WD	D1	36"	86"	1-3/4"	HM	F2	H2	J2	1
06	AL	D2	36"	94"	1-3/4"	AL	F4	H3	J3	4
07	WD	D1	36"	86"	1-3/4"	HM	F2	H2	J2	5
08	WD	D1	36"	86"	1-3/4"	HM	F2	H2	J2	5
09	HM	D1	36"	86"	1-3/4"	HM	F2	H1*	J1*	1

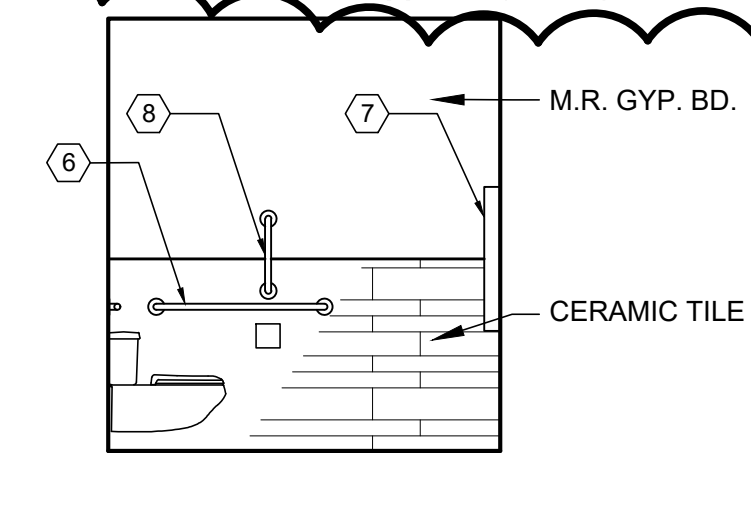
\*SIMILAR; 18" X 24" LOUVER.



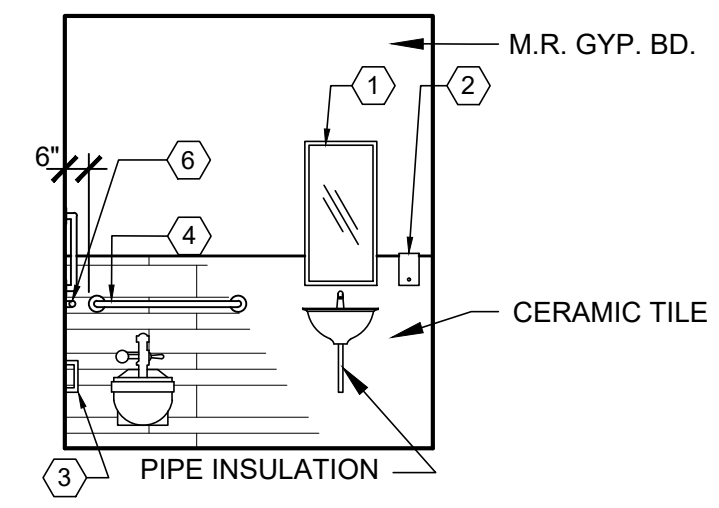
**WOMEN'S TOILET #07 (A)**  
 SCALE: 1/4" = 1'-0"



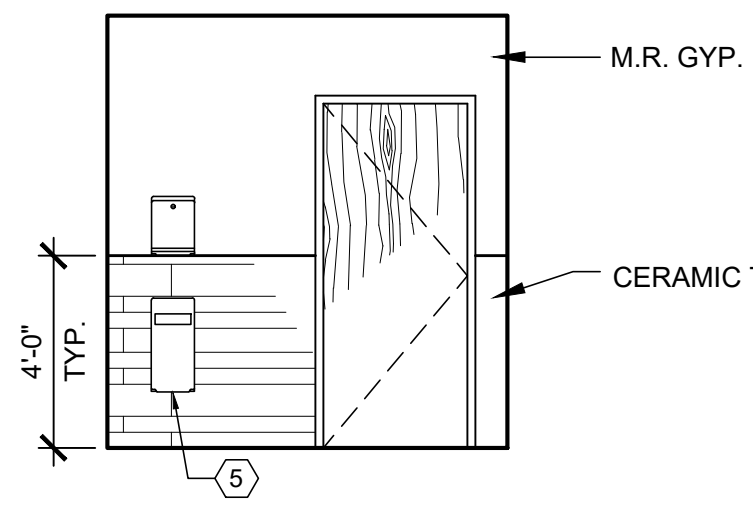
**WOMEN'S TOILET #07 (B)**  
 SCALE: 1/4" = 1'-0"



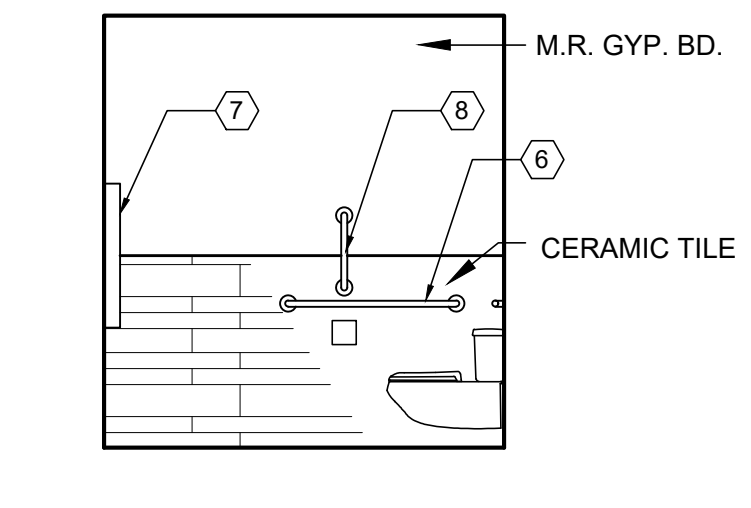
**WOMEN'S TOILET #07 (C)**  
 SCALE: 1/4" = 1'-0"



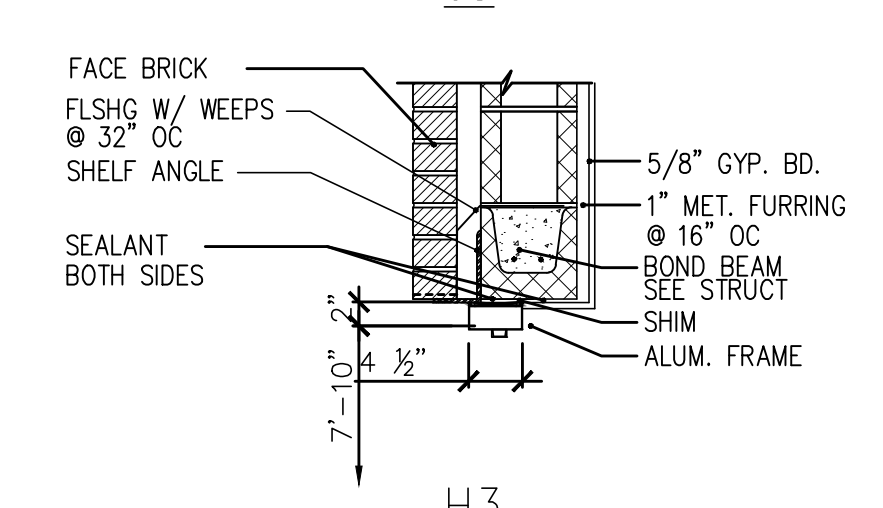
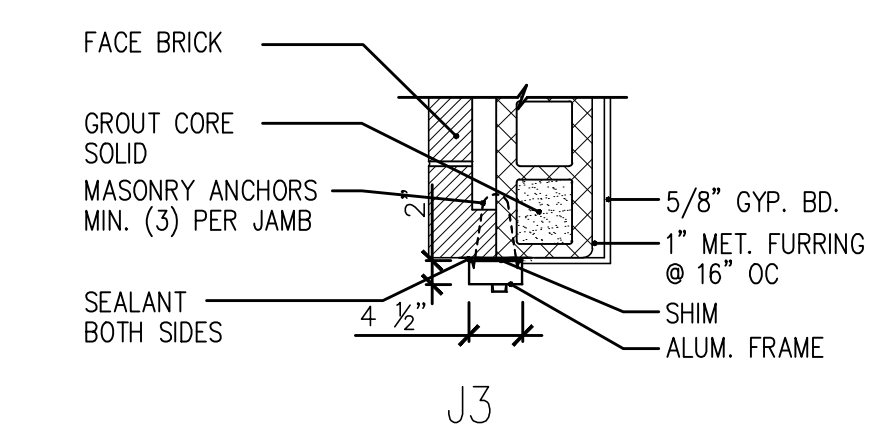
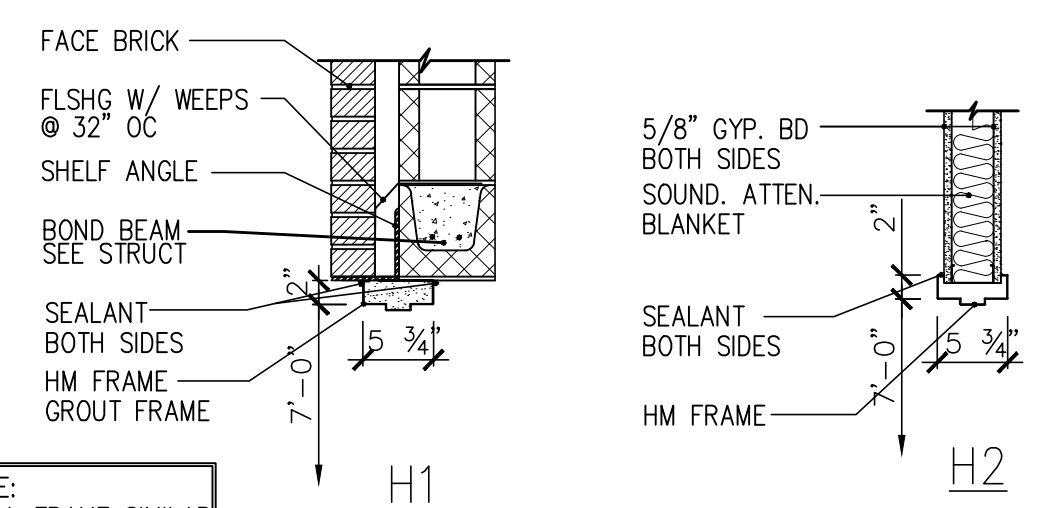
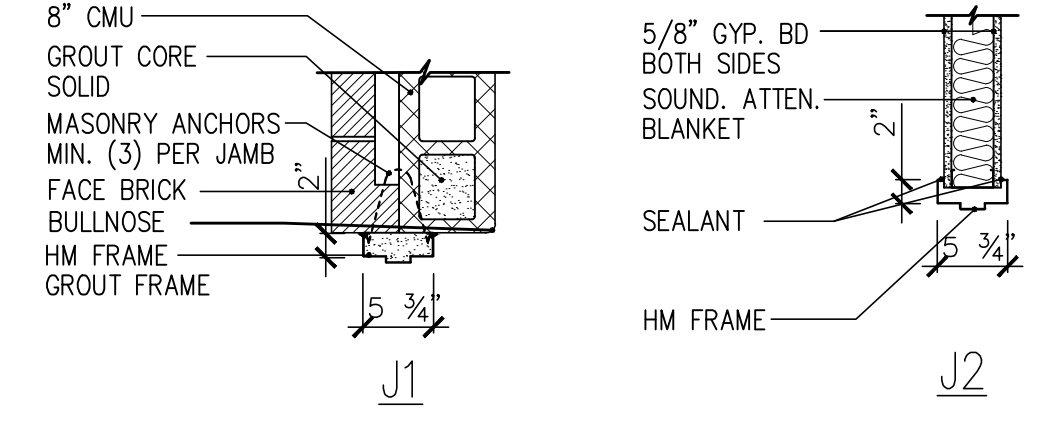
**MEN'S TOILET #08 (D)**  
 SCALE: 1/4" = 1'-0"



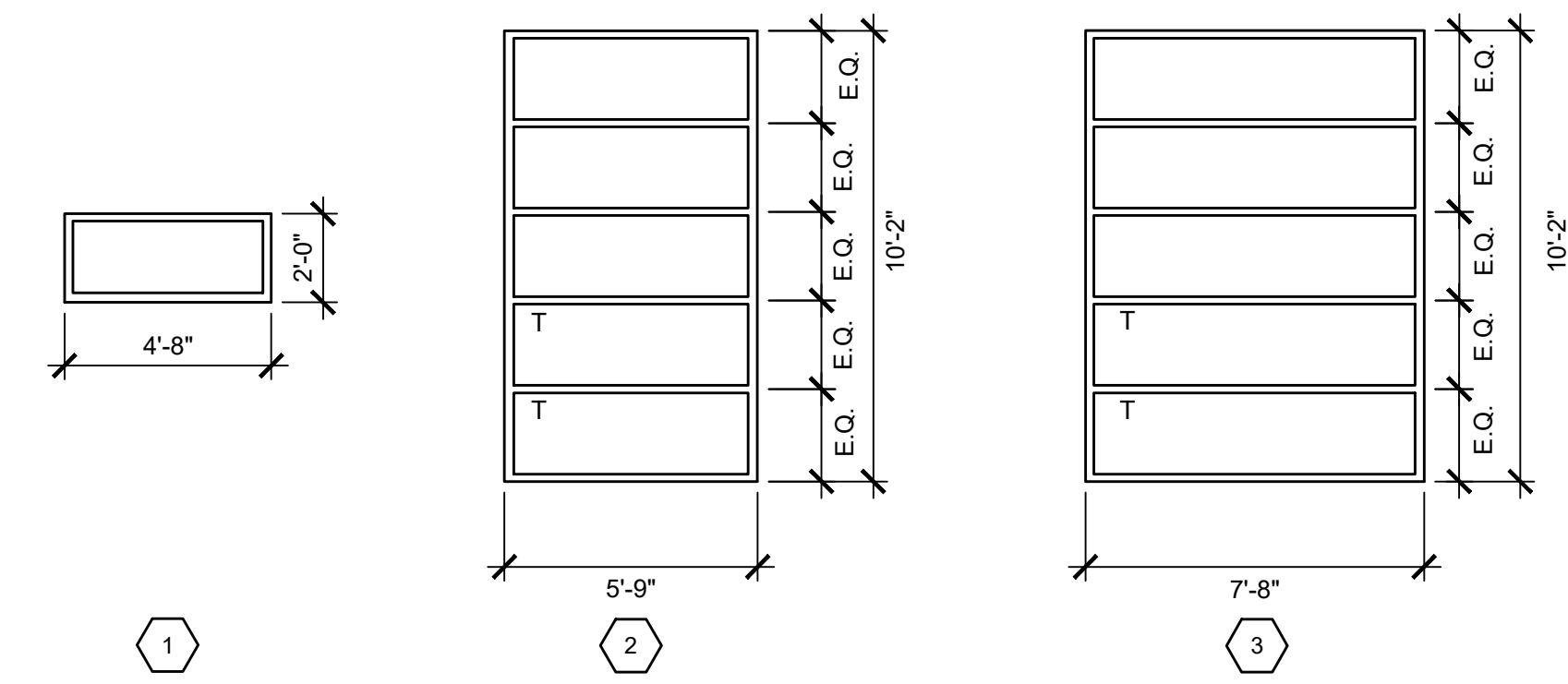
**MEN'S TOILET #08 (E)**  
 SCALE: 1/4" = 1'-0"



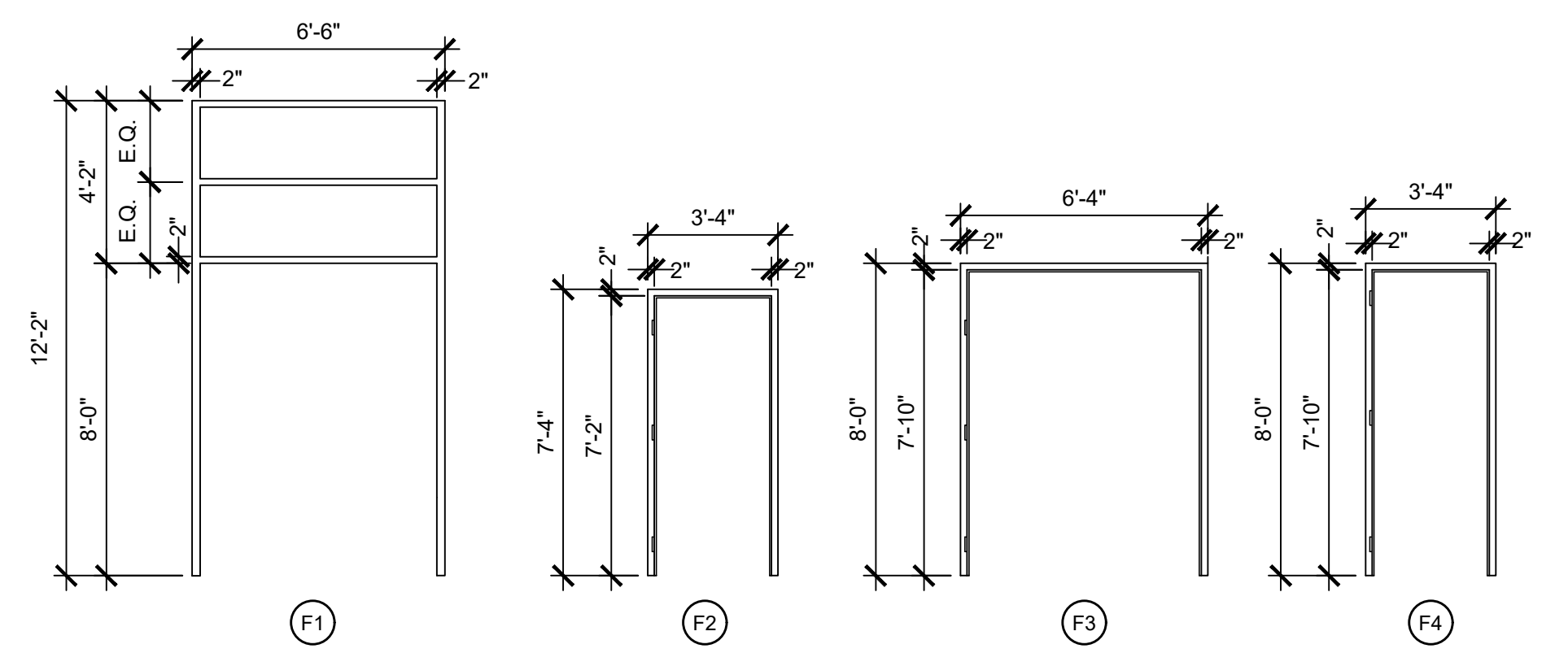
**MEN'S TOILET #08 (F)**  
 SCALE: 1/4" = 1'-0"



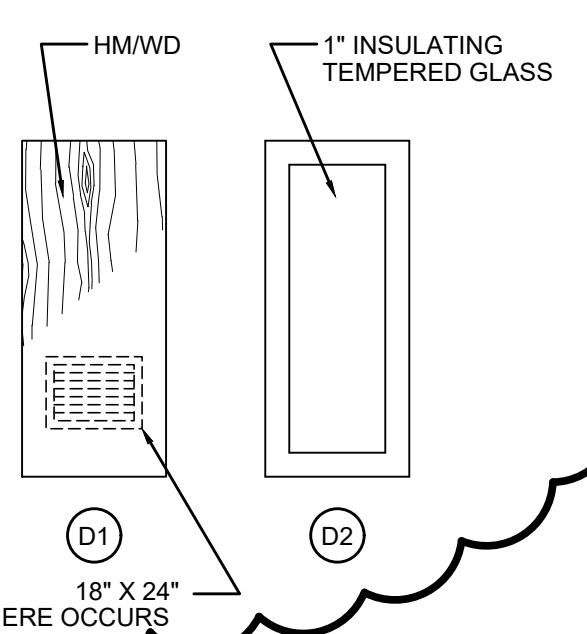
**HEADS & JAMBS**  
 SCALE: 3/4" = 1'-0"



**WINDOWS**  
 SCALE: 1/4" = 1'-0"



**DOORS AND FRAMES**  
 SCALE: 1/4" = 1'-0"



DATE	REVISION	NO	CD	ISSUED FOR	ISSUE DATE	SCALE	DESIGNED BY	DRAWN BY	CHECKED BY
8/05/2019				AS SHOWN			ADT	ADT	ADT

**LAKELAND TRANSFER CENTER**  
 LAKELAND COMMUNITY COLLEGE  
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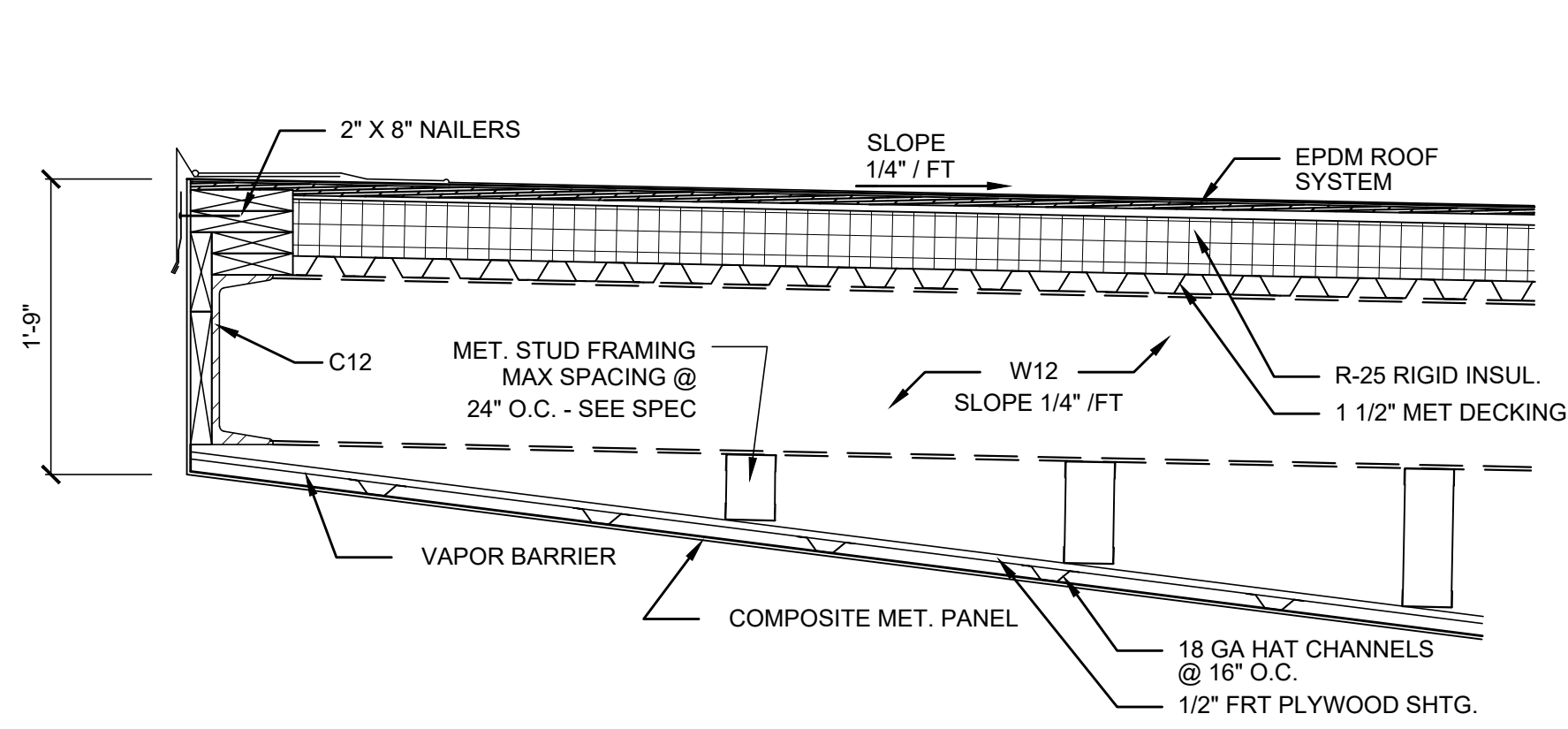
**INTERIOR ELEVATIONS & SCHEDULES**

PROJECT NO.	18050002
DISCIPLINE	ARCH
SHEET NAME	A-06
SHEET	35
OF	55

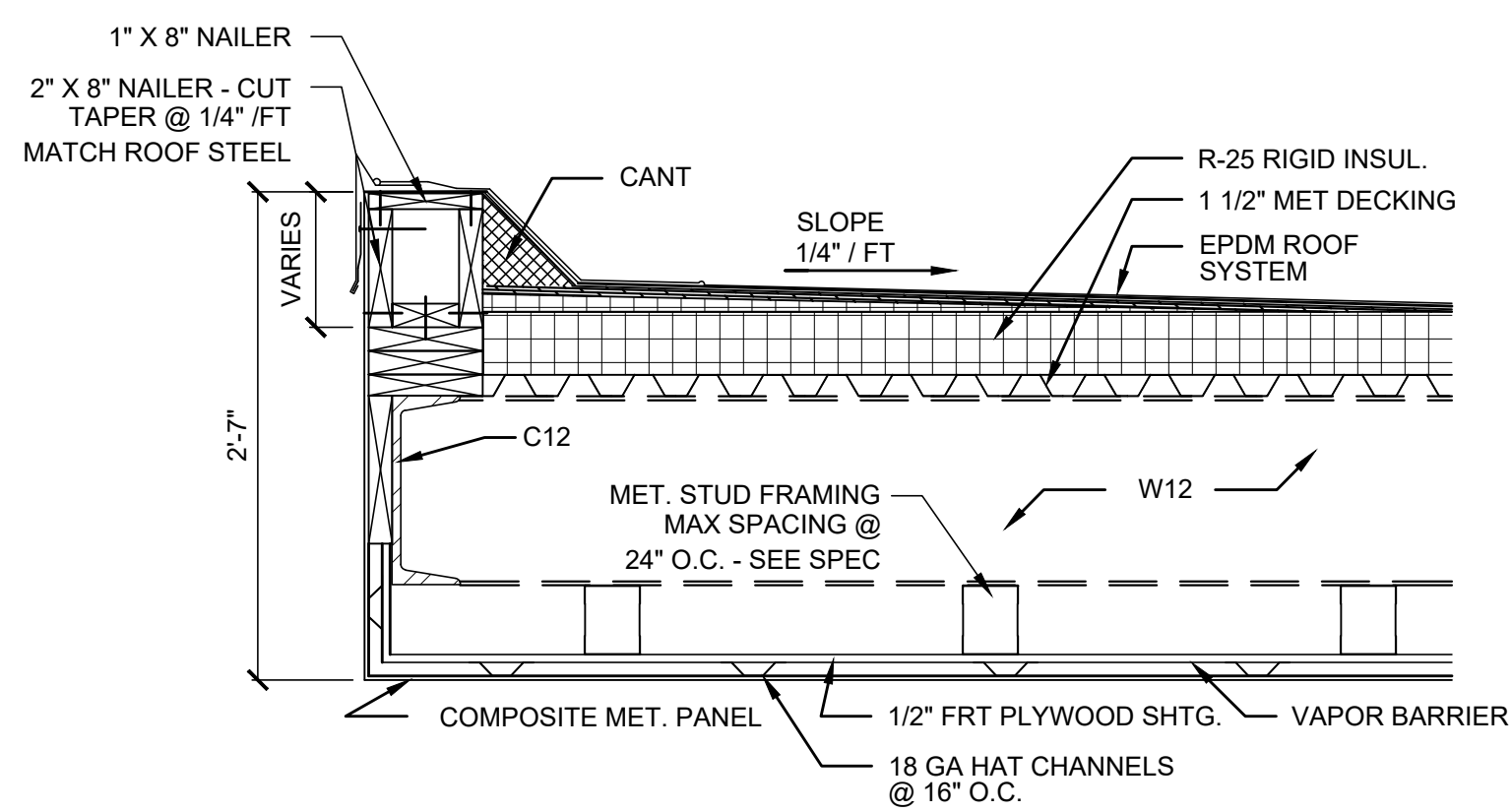
ISSUED FOR:	ISSUE DATE:	SCALE:	DESIGNED BY:	DRAWN BY:	CHECKED BY:
CD	8/5/2019	AS SHOWN	ADT	ADT	ADT
NO.	REVISION	DATE			
1	REBID REVISION	8/05/2019			

**LAKELAND TRANSFER CENTER**  
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 7601 CLOCKTOWER DR., KIRTLAND, OH 44094

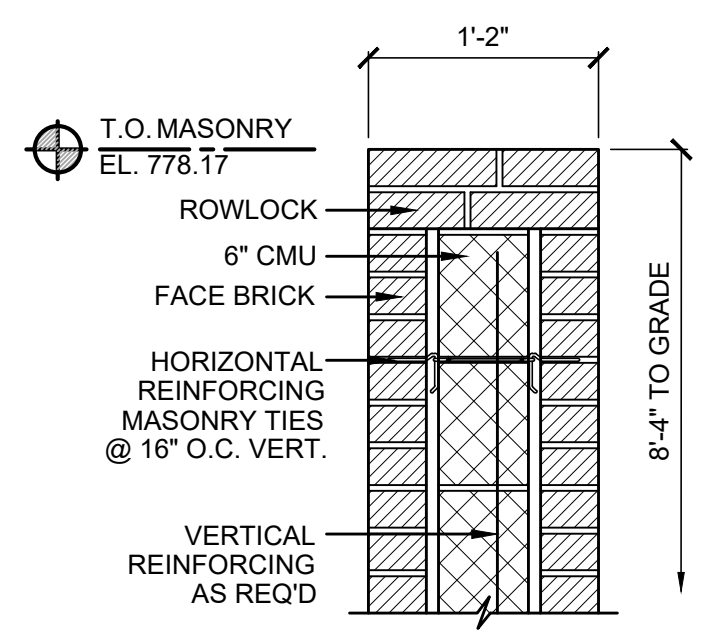
PROJECT NO.	18050002
DISCIPLINE	ARCH
SHEET NAME	A-07
SHEET	36
OF	55



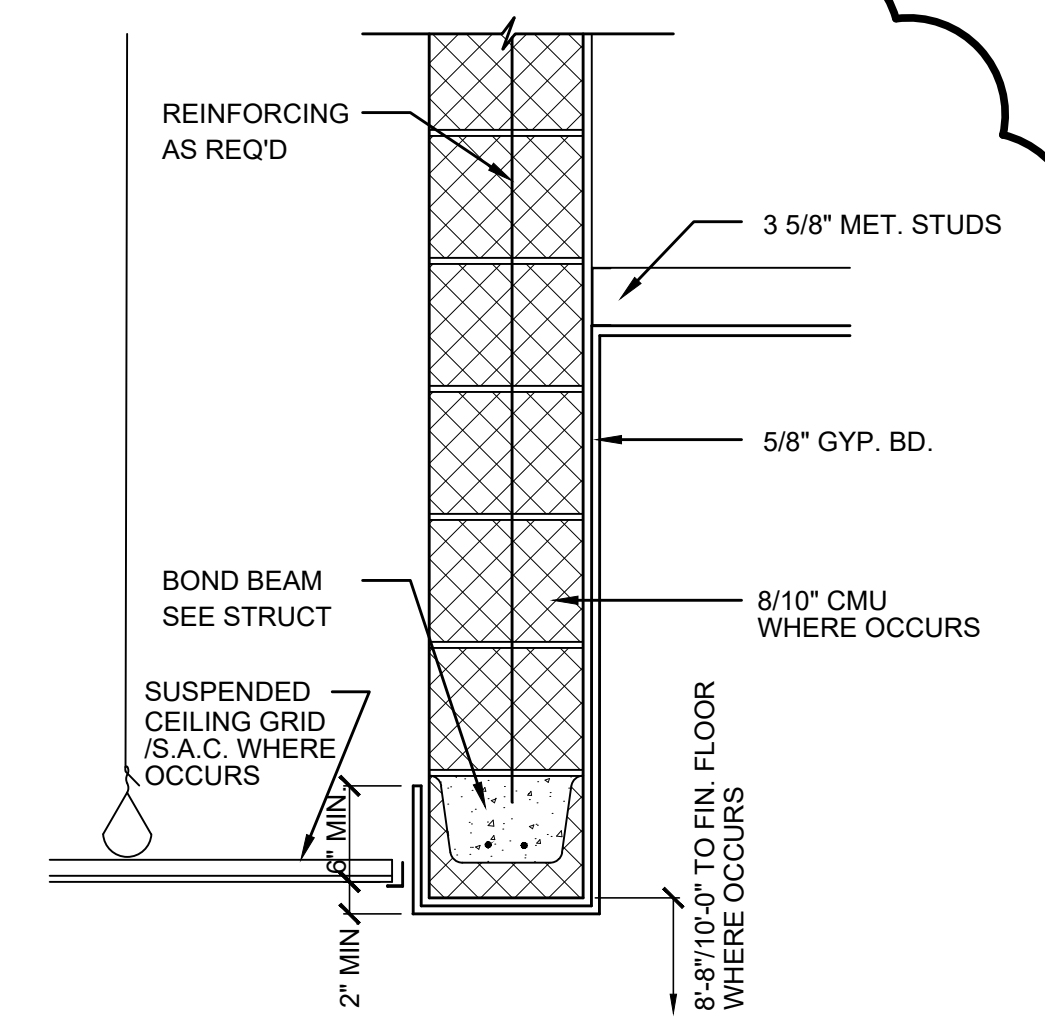
**1 ROOF OVERHANG CONSTRUCTION DETAIL**  
 SCALE: 1" = 1'-0"



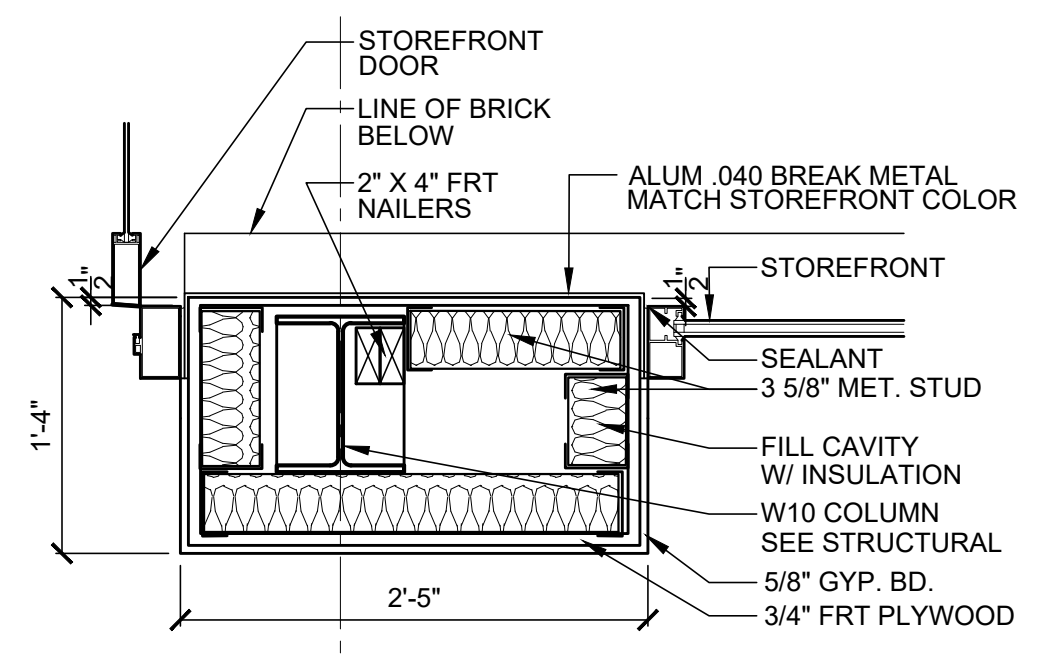
**2 ROOF OVERHANG CONSTRUCTION DETAIL**  
 SCALE: 1" = 1'-0"



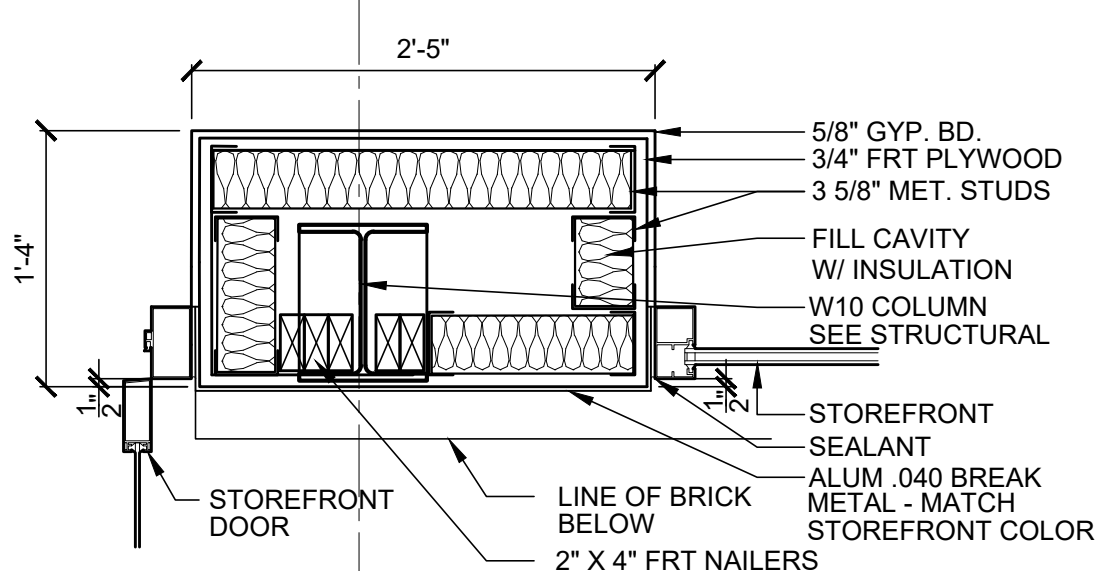
**3 COPING DETAIL**  
 SCALE: 1" = 1'-0"



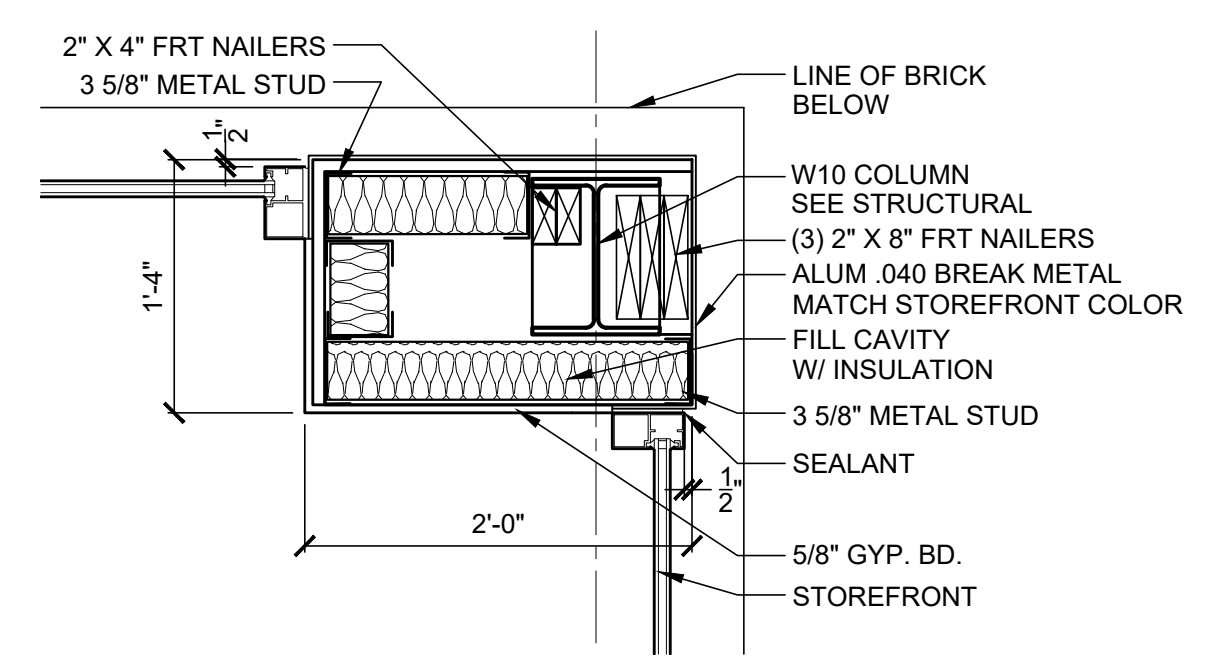
**4 DROP CEILING DETAIL**  
 SCALE: 1" = 1'-0"



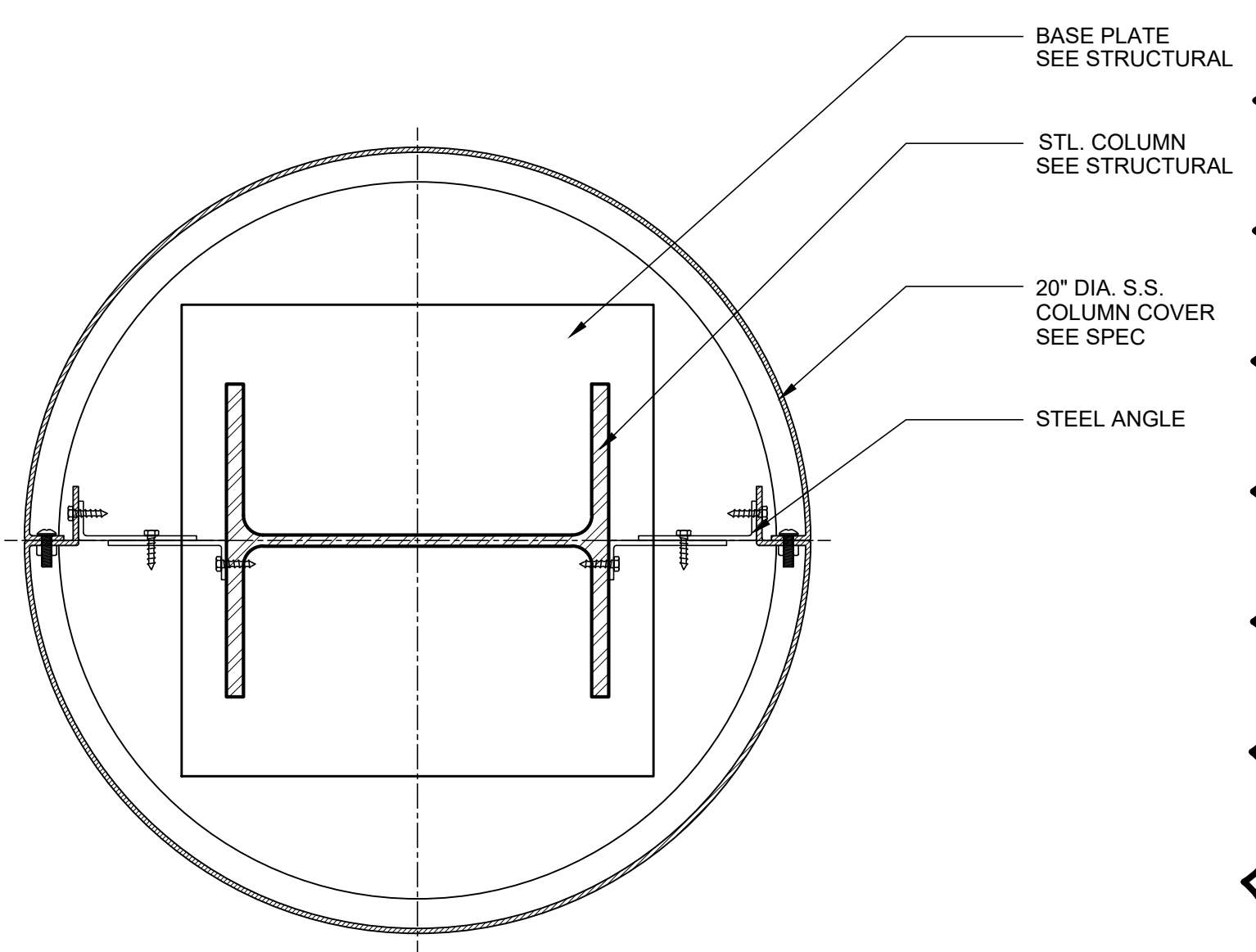
**5 W10 COLUMN COVER DETAIL**  
 SCALE: 1" = 1'-0"



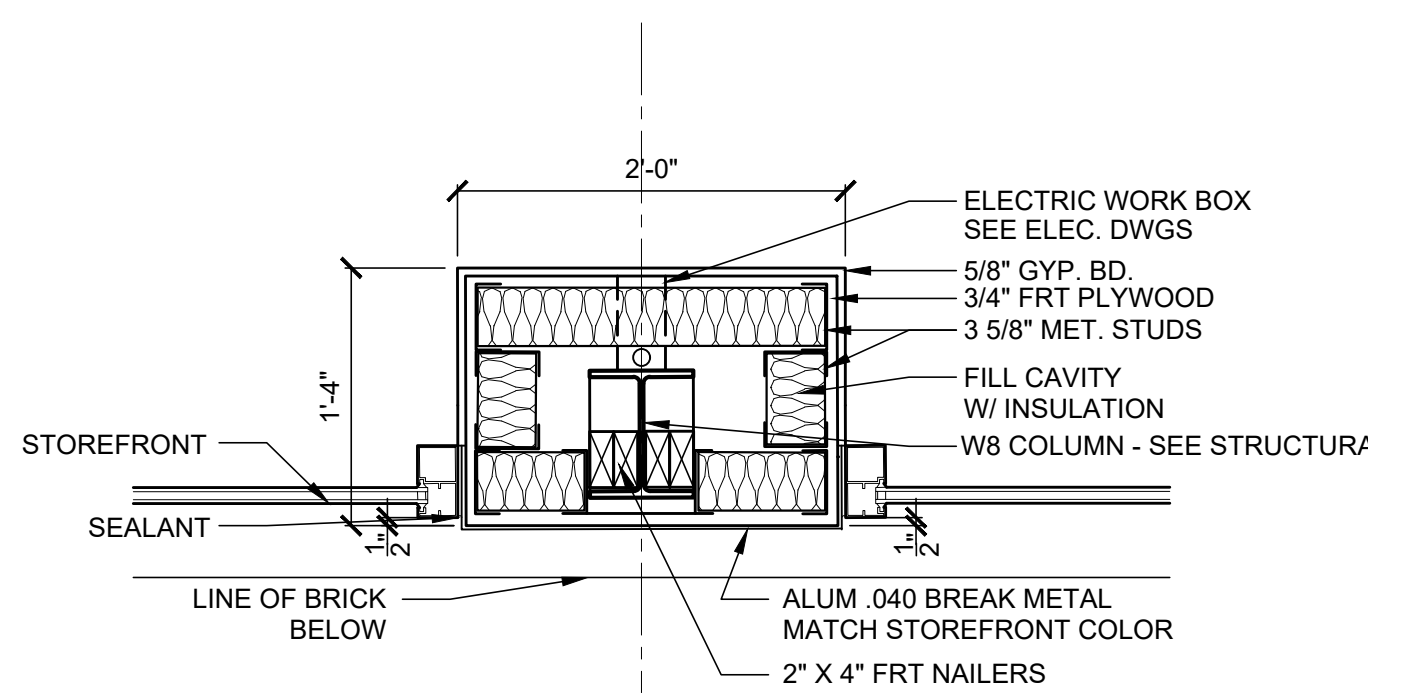
**6 W10 COLUMN COVER DETAIL**  
 SCALE: 1" = 1'-0"



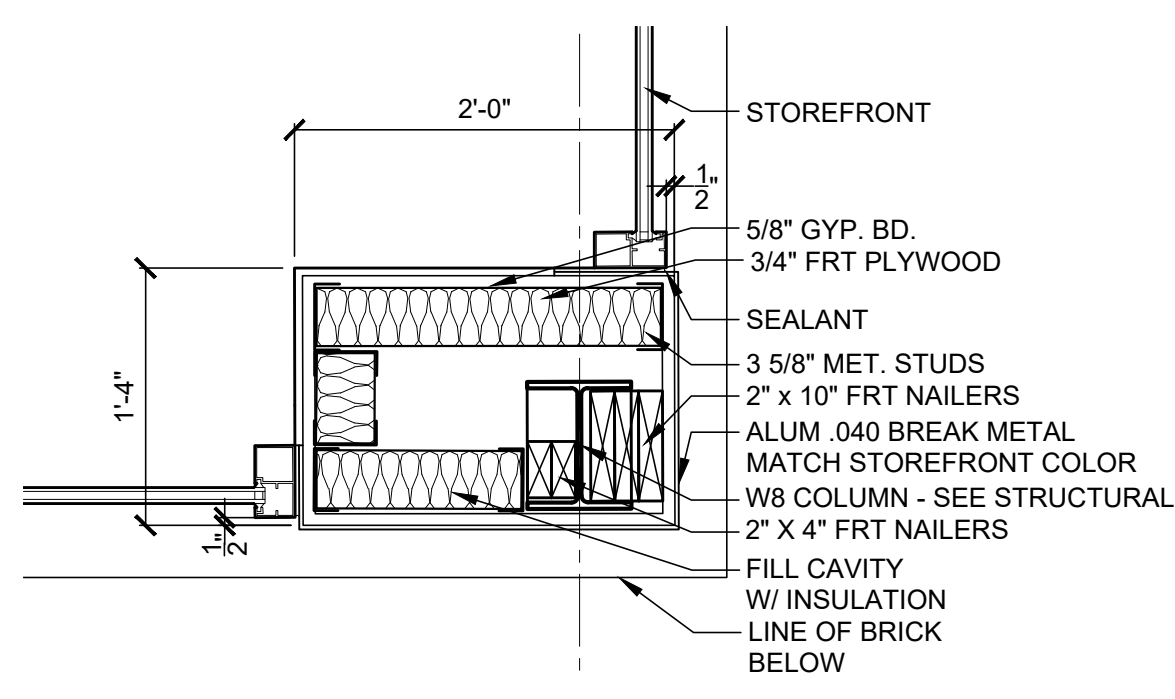
**7 W10 COLUMN COVER DETAIL**  
 SCALE: 1" = 1'-0"



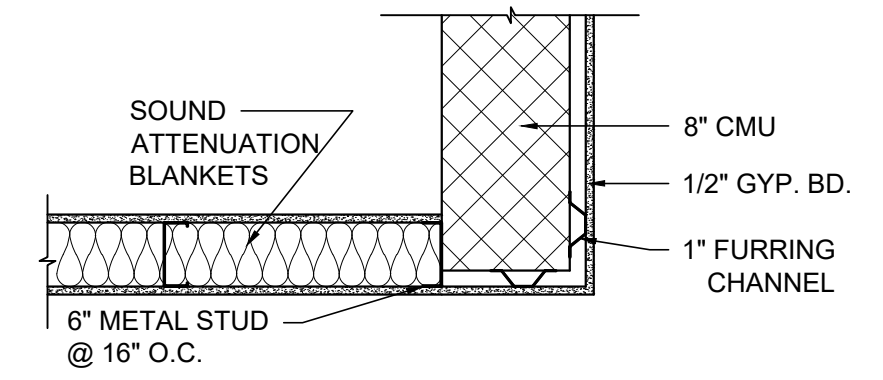
**10 COLUMN COVER DETAIL**  
 SCALE: 3" = 1'-0"



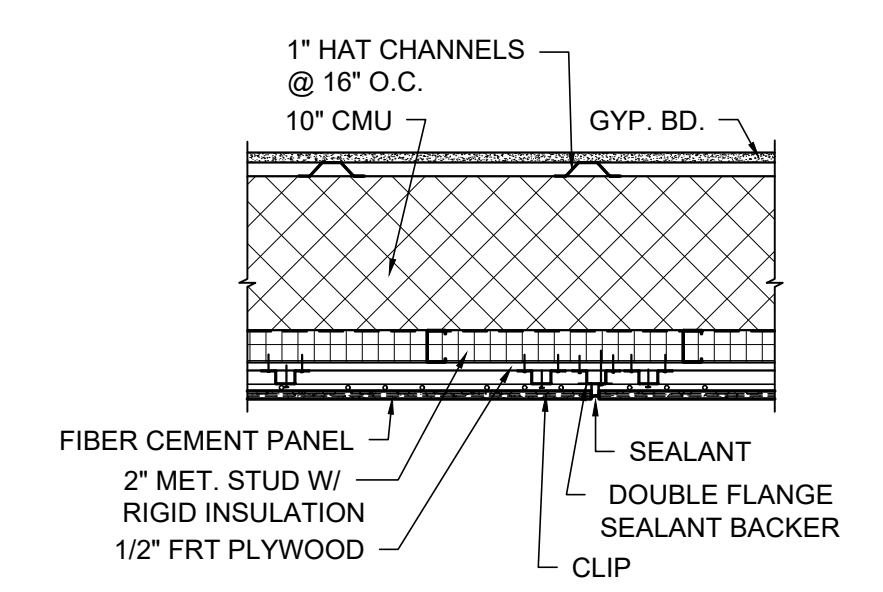
**8 W8 COLUMN COVER DETAIL**  
 SCALE: 1" = 1'-0"



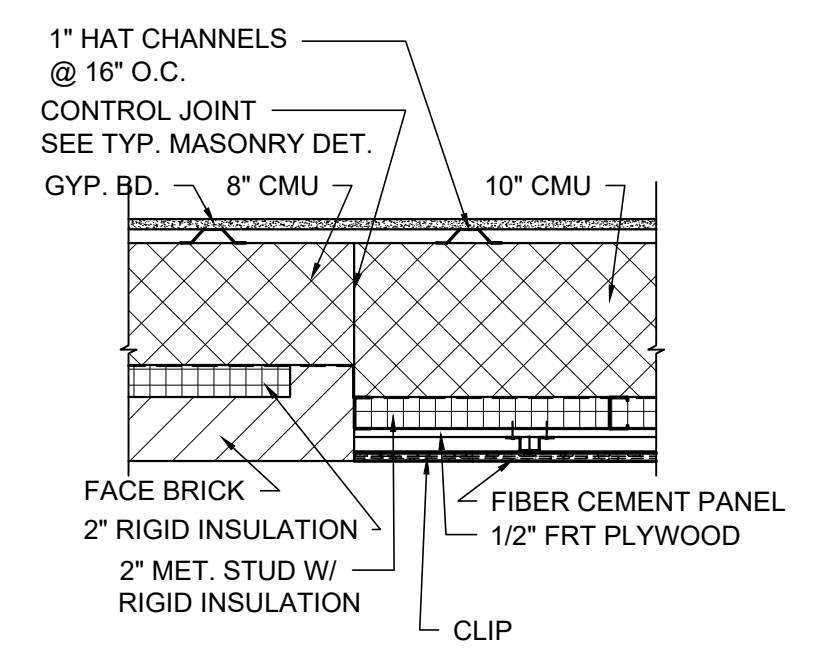
**9 W8 COLUMN COVER DETAIL**  
 SCALE: 1" = 1'-0"



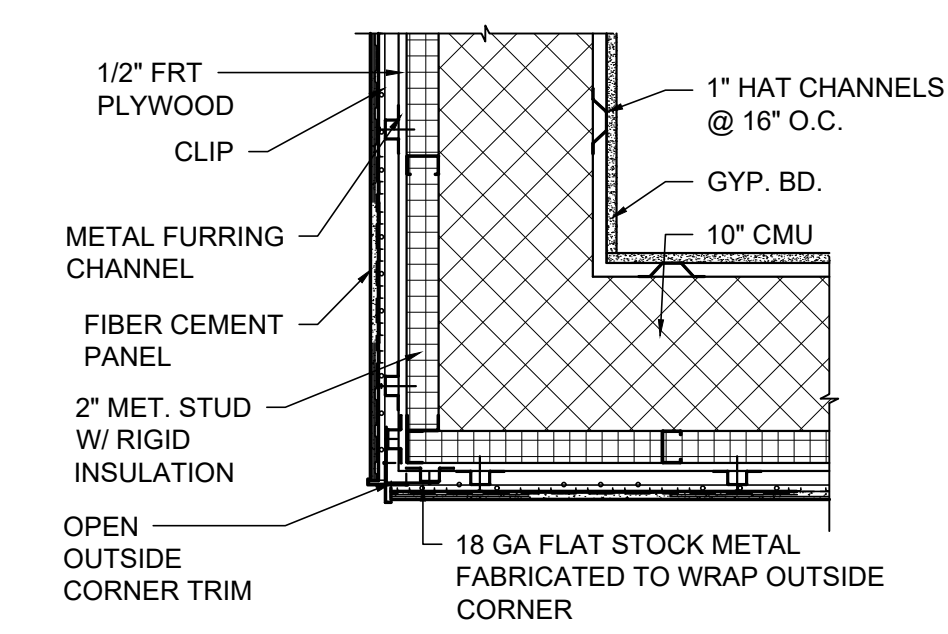
**11 STUD-MASONRY DETAIL**  
 SCALE: 1" = 1'-0"



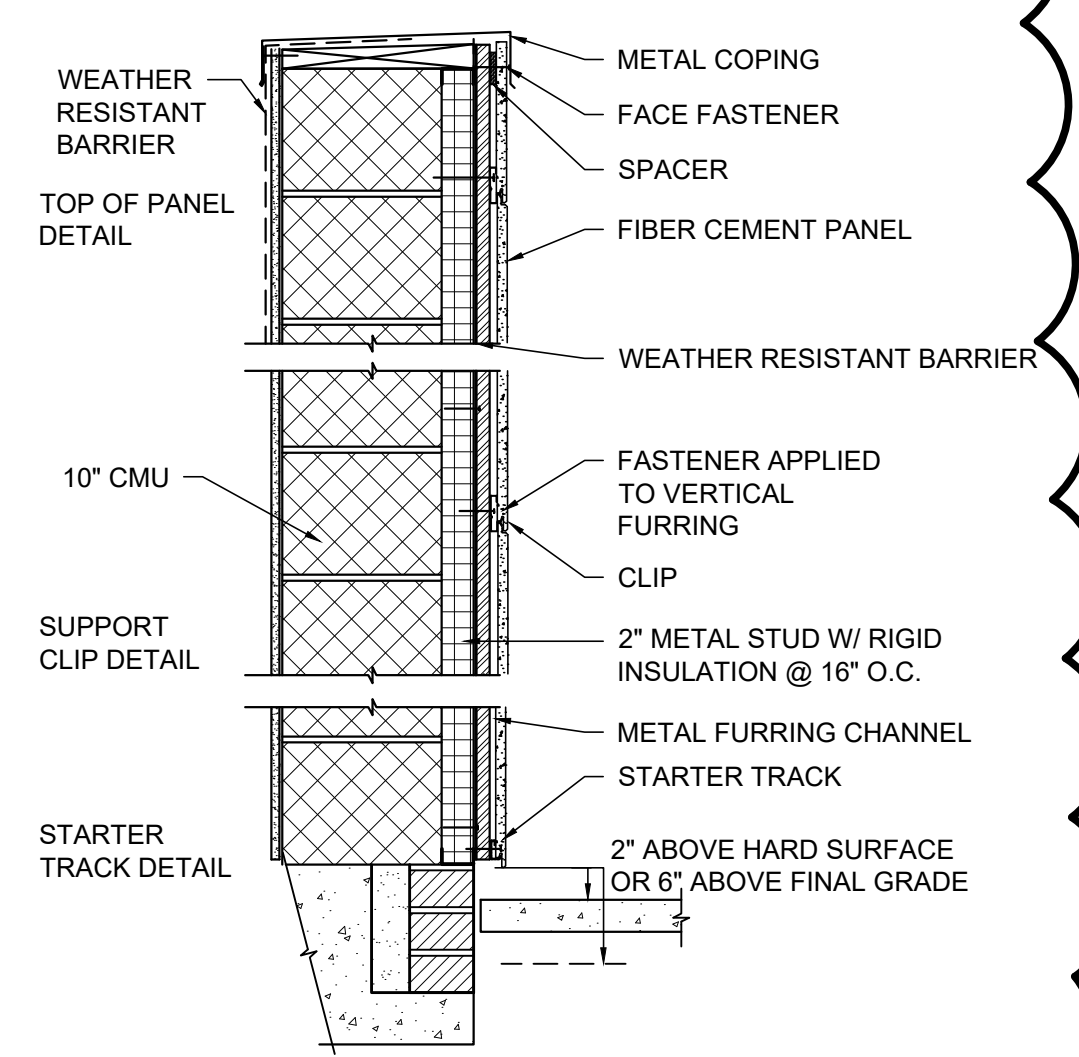
**12 EXPANSION JOINT DETAIL**  
 SCALE: 1" = 1'-0"



**13 BRICK TO PANEL TRANSITION DETAIL**  
 SCALE: 1" = 1'-0"



**14 CORNER DETAIL**  
 SCALE: 1" = 1'-0"



**15 BASE & COPING DETAIL**  
 SCALE: 1" = 1'-0"

**GENERAL**

- A. THESE GENERAL NOTES PRESENT AND/OR SUMMARIZE KEY PROJECT INFORMATION FOR THE READER'S CONVENIENCE. SEE ALSO INDIVIDUAL PLAN NOTES FOR FURTHER DETAILS AND REQUIREMENTS.
- B. ALL REFERENCES TO REFERENCE STANDARDS HEREIN ARE TO THE MOST RECENT ISSUE IN EFFECT AS OF THE DATE OF THESE DOCUMENTS, UNLESS NOTED OTHERWISE ON THE PLANS.
- C. ALL ELEVATIONS ARE REFERENCED TO FINISHED FLOOR EL. 100'-0". ALL ELEVATIONS SHOWN ON PLANS ARE REFERENCED TO THE SITE ELEVATION DATUM SHOWN ON FOUNDATION PLANS UNLESS NOTED OTHERWISE.
- D. SUBMIT SHOP DRAWINGS, PROJECT DATA, AND SAMPLES FOR ITEMS ON THE PLANS.

- 1. IDENTIFY PROMINENTLY ON DRAWINGS EACH AND ALL RESUBMITTALS BY NUMBER.
- 2. IDENTIFY ANY CHANGES WHICH HAVE BEEN MADE OTHER THAN THOSE REQUESTED BY THE ENGINEER.
- 3. SUBMITTALS FAILING TO CONFORM TO THE ABOVE WILL BE RETURNED FOR RESUBMITTAL.

E. CONTRACTOR SHALL BRACE ENTIRE STRUCTURE(S) AS REQUIRED TO MAINTAIN STABILITY UNTIL COMPLETE AND FUNCTIONING AS THE DESIGN UNIT. IN ACCORDANCE WITH THE GENERALLY ACCEPTED CONSTRUCTION PRACTICES, THE CONTRACTOR WILL BE SOLELY AND COMPLETELY RESPONSIBLE FOR CONDITIONS OF THE JOB SITE INCLUDING SAFETY OF ALL PERSONS AND PROPERTY DURING PERFORMANCE OF THE WORK. THE REQUIREMENT WILL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS.

**DESIGN CRITERIA**

**A. GOVERNING CODES, REQUIREMENTS, DESIGN STANDARDS AND SPECIFICATIONS:**

DESIGN CODE: 2017 OHIO BUILDING CODE

**DESIGN STANDARDS:**

ASCE 7-10 MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES

ACI 301 SPECIFICATIONS FOR STRUCTURAL CONCRETE

ACI 315 DETAILS AND DETAILING OF CONCRETE REINFORCEMENT

CRSI REINFORCING BAR DETAILING (MANUAL OF STANDARD PRACTICE)

ACI 318-14 BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE AND COMMENTARY

AWC NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION

AWC SPECIAL DESIGN PROVISIONS FOR WIND AND SEISMIC

**B. STRUCTURAL DESIGN LOADS**

<p>1. DEAD LOAD: SELF-WEIGHT SUPERIMPOSED DEAD LOAD ON ROOF &amp; FLOOR</p>	<p>25 PSF</p>
<p>2. FLOOR LIVE LOAD: AREAS NOT LISTED BELOW MECHANICAL ROOM SERVER ROOM GEAR ROOM WATER ROOM LOBBIES, EXITS, CORRIDORS, BATHROOM OFFICE</p>	<p>150 PSF 125 PSF 125 PSF 125 PSF 125 PSF 100 PSF 50 PSF</p>
<p>3. ROOF LIVE LOAD:</p>	<p>20 PSF</p>
<p>4. ROOF SNOW LOADS: GROUND SNOW LOAD, P<sub>g</sub> SNOW EXPOSURE FACTOR, C<sub>e</sub> SNOW LOAD IMPORTANCE FACTOR, I THERMAL FACTOR, C<sub>t</sub> (ROOFS OVER UNHEATED AREAS) THERMAL FACTOR, C<sub>t</sub> (ROOF OVER CONTINUOUSLY HEATED AREAS)</p>	<p>30 PSF 1.0 1.1 1.2 1.0</p>
<p>5. WIND LOADS: BASIC WIND SPEED (3 SEC. GUST) WIND EXPOSURE</p>	<p>120 MPH C</p>
<p>6. EARTHQUAKE DESIGN DATA BUILDING OCCUPANCY CATEGORY: SEISMIC IMPORTANCE FACTOR, I S<sub>1</sub> = S<sub>2</sub> = SITE CLASS: SEISMIC DESIGN CATEGORY:</p>	<p>III 1.5 0.207 0.060 D B</p>
<p>BASIC SEISMIC FORCE RESISTING SYSTEMS: ORDINARY STEEL MOMENT FRAMES NOT SPECIFICALLY DESIGNED FOR SEISMIC RESISTANCE RESPONSE MODIFICATION COEFFICIENT, R SEISMIC COEFFICIENT, C<sub>s</sub> =</p>	<p>3.0 0.092</p>

**FOUNDATIONS**

EXISTING CLAY FILL & LACUSTRINE CLAYS SHALL NOT BE USED FOR FOUNDATION SUPPORT IN THEIR CURRENT CONDITION. SHALLOW FOUNDATIONS SHALL BEAR ONTO STIFF OR BETTER GLACIAL MORAINÉ TILL CLAY. THE PAVEMENTS SHALL BE SUPPORTED BY A COMBINATION OF EXISTING FILL, LACUSTRINE CLAY, GLACIAL GROUND MORAINÉ TILL CLAY, AND ENGINEERED FILL.

TOPSOIL, BURIED TOPSOIL, CONSTRUCTION DEBRIS, UNSUITABLE FILL AND OTHER UNDESIRABLE MATERIALS SHALL BE REMOVED TO EXPOSE THE SUITABLE EXISTING SUBGRADE WITHIN CONSTRUCTION AREAS. SITE CLEARING SHALL EXTEND A MINIMUM 5 FEET BEYOND THE LIMITS OF THE PROPOSED IMPROVEMENT AREAS. AREAS OF UNSUITABLY LOOSE/WET SUBGRADE SHALL BE EITHER IMPROVED IN-PLACE (DRIED AND RE-COMPACTED) OR SHALL BE REPLACED WITH ENGINEERED FILL.

ANY FILL PLACED WITHIN THE CONSTRUCTION AREA, INCLUDING UTILITY TRENCH BACKFILL, SHALL BE AN APPROVED MATERIAL, FREE OF FROZEN SOIL, ORGANICS, OR OTHER UNSUITABLE MATERIALS. THE FILL SHALL BE PLACED ON SUITABLY PREPARED SUBGRADE. THE FILL SHALL BE SPREAD IN LEVEL LAYERS WHICH ARE 8 TO 10 INCHES IN LOOSE THICKNESS AND MOISTURE CONDITIONED TO WITHIN 2% OF ITS OPTIMUM CONTENT AND SHALL BE COMPACTED TO AT LEAST 98% OF THE MAXIMUM DRY DENSITY AS DETERMINED IN ACCORDANCE WITH THE STANDARD PROCTOR TEST (ASTM D698). FILLS PLACED BELOW THE FOUNDATION BEARING ELEVATION AND WITHIN 12 INCHES OF THE FLOOR SLAB AND PAVEMENT SUBGRADE SURFACES SHALL BE COMPACTED TO 100 PERCENT OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY. VIBRATORY EQUIPMENT (STEEL-DRUM ROLLER, PLATE COMPACTOR) SHALL BE USED TO COMPACT GRANULAR FILL, WHILE COHESIVE FILL SHALL BE COMPACTED WITH A SHEEPSFOOT ROLLER.

COARSE CRUSHED AGGREGATE (OR CRUSHED STONE) USED TO BACKFILL UTILITY TRENCHES SHALL CONSIST OF ODOT #57 CRUSHED LIMESTONE OR ODOT #304 BASE MATERIAL WITH A MODIFIED GRADATION. COARSE CRUSHED MATERIAL SHALL BE WRAPPED WITH AN APPROVED NON-WOVEN GEOTEXTILE.

A MODULUS OF SUBGRADE REACTION, K OF 100 POUNDS PER CUBIC-INCH (PCI) IS USED FOR DESIGN OF FLOOR SLAB SUBGRADES. THE TOP 4 INCHES OF THE SLAB SUBBASE SHALL CONSIST OF AN APPROVED FREE DRAINING, AGGREGATE MATERIAL. SLAG OR SHALE SHALL NOT BE USED AS BASE MATERIAL. CONCRETE SLAB SHALL BE PLACED SOON AFTER THE LEVELING COURSE, ENSURE PROPER PLACEMENT AND COMPACTION OF THE UNDERLYING SUBGRADE. A VAPOR RETARDER SHALL BE INSTALLED BELOW FLOOR SLABS. VAPOR RETARDER SHALL CONSIST OF 10 MIL (MINIMUM) PLASTIC SHEETS THAT COVER THE ENTIRE FLOOR SLAB AREA AND WITH EACH SHEET OVERLAPPED OR SEALED PER THE MANUFACTURER'S SPECIFICATIONS.

FLOOR SLABS SHALL BE SEPARATED BY ISOLATION JOINTS FROM STRUCTURAL WALLS AND COLUMNS BEARING ON THEIR OWN FOUNDATIONS. A MINIMUM OF 6 INCHES OF ENGINEERED FILL SHALL BE PLACED BETWEEN THE BOTTOM OF THE SLAB AND THE TOP OF THE SHALLOW SPREAD FOUNDATION BELOW. ANY FROZEN SOILS SHALL BE THAWED AND COMPACTED, OR REMOVED AND REPLACED PRIOR TO SLAB-ON-GRADE CONSTRUCTION.

ISOLATED SPREAD FOOTINGS ARE USED TO SUPPORT COLUMNS AND CONTINUOUS STRIP FOOTINGS TO SUPPORT WALLS. FOUNDATIONS SHALL BE CONSTRUCTED TO BEAR ON MEDIUM STIFF OR BETTER GLACIAL TILL LEAN CLAY AND SHALL BE PROPORTIONED FOR A NET ALLOWABLE SOIL BEARING PRESSURE NOT EXCEEDING 3,000 PSF.

FOOTING TRENCHES SHALL BE EXCAVATED TO A LEVEL BEARING SURFACE. BEARING SURFACES SHALL BE CLEANED OF MUD AND LOOSE CUTTINGS AND SHALL BE PROTECTED AGAINST WATER ACCUMULATION FROM RAINFALL, SURFACE DRAINAGE, OR EXCAVATION SIDEWALL SEEPAGE PRIOR TO PLACING CONCRETE. BEARING SOILS SHALL BE PROTECTED FROM FREEZING IF THERE IS A DELAY IN PLACING CONCRETE DURING COLD WEATHER. EXTERIOR FOOTINGS SURROUNDING CONTINUOUSLY HEATED AREAS SHALL HAVE AN EMBEDMENT OF AT LEAST 3 FEET BELOW THE LOWEST ADJACENT EXTERIOR GRADE FOR PROTECTION AGAINST FROST-RELATED HEAVE, AND EMBEDMENT OF FOOTINGS IN OR SURROUNDING UNHEATED AREAS SHALL BE INCREASED TO AT LEAST 3.5 FEET.

SUBGRADE PREPARATION FOR ALL PAVEMENT SHALL CONSIST OF COMPLETE REMOVAL OF THE EXISTING TOPSOIL AND TREES/TREE MATS, REMOVAL OF OLD PAVEMENTS, SUBGRADE ASSESSMENT (i.e., A FIELD EVALUATION OF THE CONDITION OF THE EXPOSED SUBGRADE WITH THOROUGH COMPACTION, PROOFROLLING, FINE GRADING, AND OCCASIONAL UNDERCUTTING TO REMOVE AND REPLACE LOW-STRENGTH SUBGRADE), AND PLACEMENT OF NEW PAVEMENT LAYERS. SUBGRADE PREPARATION AND AGGREGATE BASE LAYER SHALL EXTEND OUT TO AT LEAST 12 INCHES BEYOND THE EDGE OF PAVEMENT OR CURBS TO PROVIDE SUPPORT FOR THE OUTER EDGES OF PAVEMENT. UTILITIES, CURBS, AND OTHER EXISTING STRUCTURES SHALL BE PROTECTED. FINE-GRADE THE SUBGRADE TO SLOPE DOWNWARD TOWARD THE STORMWATER DRAINAGE STRUCTURES. A QUALIFIED GEOTECHNICAL ENGINEERING FIRM SHALL BE ON-SITE TO OBSERVE THE PROOFROLL.

ANY LOOSE OR SOFT AREAS IDENTIFIED FROM THE PROOFROLLING SHALL BE RECOMPACTED, OR UNDERCUT AND REPLACED WITH ADDITIONAL ENGINEERED FILL. WHERE NECESSARY, CRUSHED STONE BACKFILL IN COMBINATION WITH HIGH-STRENGTH WOVEN GEOTEXTILE FABRIC OR GEOGRID, SHALL BE USED TO STABILIZE THE SUBGRADE.

**TEMPORARY EXCAVATIONS**

FOR ANY EXCAVATIONS PERFORMED ADJACENT TO EXISTING STRUCTURES, TAKE MEASURES TO PROTECT THE INTEGRITY OF EXISTING ADJACENT FOUNDATIONS. ALL EXCAVATIONS AND CORRESPONDING CONSTRUCTION FOR THE PROJECT MUST BE PERFORMED WITHOUT ENDANGERING THE CONSTRUCTION WORKERS. THEREFORE, IN ACCORDANCE WITH OSHA TRENCH/EXCAVATION REGULATIONS (OSHA 29 CFR PART 1926), ANY EXCAVATIONS EXCEEDING A DEPTH OF 5 FEET FOR WHICH WORKERS WILL BE ENTERING THE EXCAVATION/TRENCH, THE EXCAVATION SIDES MUST BE BRACED, OR SLOPED TO THE REQUIRED MAXIMUM INCLINATION (OR FLATTER) BASED ON THE SOIL TYPE AND STRENGTH. WHERE SLOPING IS TO BE USED, THE EXCAVATION SLOPE LAYBACK SHALL BE BASED UPON THE SOIL CONDITIONS ENCOUNTERED DURING THE EXCAVATION PROCESS, WHICH ARE EVALUATED BY A "COMPETENT PERSON" IN ACCORDANCE WITH OSHA REGULATIONS. IN AREAS WHERE SLOPING OF EXCAVATIONS DEEPER THAN 20 FEET ARE PLANNED, A REGISTERED PROFESSIONAL ENGINEER SHALL DESIGN THE SLOPED EXCAVATIONS IN ACCORDANCE WITH OSHA REGULATIONS.

THE SITE CONSTRAINTS ARE SUCH THAT IT MAY NOT BE PRACTICAL TO ALLOW FOR EXCAVATIONS TO HAVE THE MINIMUM LAYBACK SLOPES. THE INFLUENCE ZONE OF THE EXCAVATION CAN BE DETERMINED BY EXTENDING AN IMAGINARY LINE FROM THE BASE OF THE EXCAVATION TO THE GROUND SURFACE USING AN INCLINATION OF APPROXIMATELY 45 DEGREES WITH THE HORIZONTAL. THEREFORE, THE LATERAL DISTANCE, DEPTH OF EXISTING UTILITIES OR FOUNDATIONS, AND THE PLANNED EXCAVATION DEPTH MUST BE KNOWN TO DETERMINE WHETHER THE ADJACENT STRUCTURE COULD BE AFFECTED BY THE EXCAVATION. ANY EXCAVATION THAT IS POSITIONED NEAR AN ADJACENT STRUCTURE, SUCH THAT THE EXCAVATION WILL BE WITHIN THE INFLUENCE ZONE OF THE NEARBY STRUCTURE, SHALL INCLUDE AN APPROPRIATELY DESIGNED BRACING SYSTEM.

IF A BRACING SYSTEM IS REQUIRED AND NO LATERAL MOVEMENT OF THE ADJACENT EXISTING STRUCTURES/UTILITIES CAN OCCUR, THE BRACING/SHORING SHALL BE DESIGNED AND INSTALLED AS A RIGID SYSTEM WITHOUT DEFLECTION ALONG THE ENTIRE HEIGHT. FURTHER, THE SYSTEM MUST BE CONSTRUCTED "TIGHT" AGAINST THE RETAINED SOIL TO BE EFFECTIVE. FOR EXAMPLE, THE BRACING SYSTEM CANNOT BE INSTALLED AFTER THE EXCAVATION IS MADE. IN MOST CASES, AN EFFECTIVE BRACING SYSTEM IS COMPRISED OF SHEETING DRIVEN PRIOR TO THE EXCAVATION, POSSIBLY WITH TIE-BACKS, OR DRILLED PIER SUPPORTED H-PILES WITH THE USE OF WOOD LAGGING.

ANY BRACING SYSTEM SHALL BE DESIGNED BY A REGISTERED PROFESSIONAL ENGINEER AND SUBMITTED FOR REVIEW. FOR DESIGN OF A BRACING OR TEMPORARY RETENTION SYSTEM, THE DESIGN LOADS SHALL ACCOUNT FOR "AT-REST" CONDITIONS WHERE LATERAL MOVEMENT OF THE EXCAVATION WALL IS UNACCEPTABLE. THE BRACED OR SHORED RETAINING WALL SHALL BE CONSIDERED NON-YIELDING IF THE ALLOWABLE MOVEMENT AT THE TOP OF THE WALL IS LESS THAN 1.0 PERCENT OF THE HEIGHT. ALSO, ANY SURCHARGE LOADS AS A RESULT OF CONSTRUCTION EQUIPMENT OR STOCKPILING OF SOIL/SUPPLIES OR THE ADJACENT EXCAVATION MUST BE INCLUDED IN THE DESIGN LATERAL LOAD DETERMINATION FOR TEMPORARY OR PERMANENT BRACING. THE DESIGN LATERAL EARTH PRESSURES SHALL BE SELECTED IN ACCORDANCE WITH THE VALUES PROVIDED IN THE GEOTECHNICAL REPORT.

IN FEDERAL REGISTER, VOLUME 54, NO. 209 (OCTOBER 1989), THE UNITED STATES DEPARTMENT OF LABOR, OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) AMENDED ITS "CONSTRUCTION STANDARDS FOR EXCAVATIONS, 29 CFR, PART 1926, SUBPART P". THIS DOCUMENT WAS ISSUED TO BETTER ENSURE THE SAFETY OF WORKERS ENTERING TRENCHES OR EXCAVATIONS. IT IS MANDATED BY THIS FEDERAL REGULATION THAT EXCAVATIONS, WHETHER THEY ARE UTILITY TRENCHES, BELOW GRADE STRUCTURES, BASEMENT EXCAVATIONS, EXCAVATIONS REQUIRED FOR UNDERCUTTING, OR FOOTING EXCAVATIONS, BE CONSTRUCTED IN ACCORDANCE WITH THE OSHA GUIDELINES. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR DESIGNING AND CONSTRUCTING STABLE, TEMPORARY EXCAVATIONS AND SHOULD SHORE, SHEET, SLOPE, OR BRANCH THE SIDES OF THE EXCAVATIONS AS REQUIRED TO MAINTAIN STABILITY OF BOTH THE EXCAVATION SIDES AND BOTTOM. THE CONTRACTOR'S "RESPONSIBLE PERSON", AS DEFINED IN 29 CFR PART 1926, SHOULD EVALUATE THE SOIL EXPOSED IN THE EXCAVATIONS AS PART OF THE CONTRACTOR'S SAFETY PROCEDURES. IN NO CASE SHOULD SLOPE HEIGHT, SLOPE INCLINATION, OR EXCAVATION DEPTH, INCLUDING UTILITY TRENCH EXCAVATION DEPTH, EXCEED THOSE SPECIFIED IN LOCAL, STATE, AND FEDERAL SAFETY REGULATIONS. IF AN EXCAVATION (INCLUDING A TRENCH) IS EXTENDED TO A DEPTH OF MORE THAN TWENTY (20) FEET, IT WILL BE NECESSARY TO HAVE THE SIDE SLOPES DESIGNED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF OHIO.

**LOW STRENGTH MORTAR BACKFILL**

- 1. SELF-COMPACTING FLOWABLE, CONTROLLED LOW STRENGTH MORTAR BACKFILL SHALL BE USED FOR BACKFILL WHERE INDICATED. ONLY NATURAL AGGREGATE MAY BE USED.

REFER TO ODOT LS 613 FLOWABLE FILL LSM, WITH A MAXIMUM 28 DAY UNCONFINED COMPRESSIVE STRENGTH OF 100 PSI, SAMPLES SHALL BE FABRICATED AND TESTED IN ACCORDANCE WITH ASTM D 4832, AT 7 AND 28 DAYS.

**TESTING AND INSPECTION**

- A. FOUNDATIONS AND EARTHWORK. GEOTECHNICAL ENGINEER/TESTING LABORATORY TO BE ENGAGED FOR QUALITY CONTROL AND VERIFICATION. ALL OPEN FOUNDATION EXCAVATIONS SHALL BE INSPECTED AND APPROVED BY A LICENSED GEOTECHNICAL ENGINEER PRIOR TO CONCRETE PLACEMENT.
- B. MATERIALS AND PROCEDURES. TESTING LABORATORY TO BE ENGAGED FOR MATERIAL TESTING AS REQUIRED BY OBC CHAPTER 17. SEE SHEET S-5.
- C. SPECIAL INSPECTOR. A SPECIAL INSPECTOR SHALL BE ENGAGED BY THE CONTRACTOR TO INSPECT ELEMENTS AS REQUIRED BY OBC CHAPTER 17.

**MASONRY**

MATERIALS:  
MORTAR: ASTM 270 TYPE S  
CONCRETE BLOCK: TYP. UNIT PER ASTM C90 GRADE N, TYPE NORMAL WEIGHT AGGR. PER ASTM C33  
CONCRETE BLOCK UNITS: ASSEMBLY COMPRESSIVE STRENGTH (f<sub>m</sub>) SHALL BE NO LESS THAN 1500 PSI. UNIT COMPRESSIVE STRENGTH SHALL BE NO LESS THAN 1900 PSI. SEE ALSO SPECIFICATIONS.  
MASONRY GROUT: COMPRESSIVE STRENGTH (f<sub>g</sub>) SHALL BE 2000 PSI MIN.

INSPECTION IS REQUIRED DURING PREPARATION AND TAKING OF ANY REQUIRED PRISM OR TEST SPECIMENS AND ON A PERIODIC BASIS DURING THE PLACING OF MASONRY UNITS. PLACEMENT OF REINFORCEMENT, INSPECTION OF GROUT SPACE IMMEDIATELY PRIOR TO CLOSING OF CLEANOUTS AND DURING GROUTING OPERATIONS

VERTICAL SINGLE REINFORCING SHALL BE LOCATED IN EXACT CENTER OF BLOCKS. VERTICAL DOUBLE REINFORCING SHALL BE OFFSET TOWARD CMU FACES. USE VERTICAL BAR POSITIONERS FOR PLACEMENT.

ALL VERTICAL WALL REINFORCEMENT TO HAVE CONTACT SPLICES - WIRED TOGETHER WITH LAP SPLICES OR FULL STRENGTH WELDS OR MECHANICALLY COUPLED. SEE ALSO MASONRY LAP SPLICE SCHEDULE.

PROVIDE GALV. DUR-O-WAL (OR APPROVED EQUAL) JOINT REINF. AT 16" O.C. MEASURED VERTICALLY IN ALL MASONRY WALLS UNLESS NOTED OTHERWISE ON DWGS. JOINT REINF. SHALL CROSS ALL WYTHES.

ALL MASONRY WALLS SHALL HAVE VERTICAL REINFORCEMENT #5 BARS @ 2'-8" O.C. (U.N.O.) CELLS WITH REINFORCING SHALL BE FULLY GROUTED.

VERTICAL #5 BARS SHALL ALSO BE PROVIDED AT CORNERS, WITHIN 8" OF EACH SIDE OF OPENINGS, WITHIN 8" OF EACH SIDE OF MOVEMENT JOINTS, AND WITHIN 8" OF THE ENDS OF WALLS.

ROUTE VERTICAL REINFORCING BARS AROUND BEARING PLATES WHERE NECESSARY FOR CONTINUITY OF REINFORCEMENT.

PROVIDE #5 VERTICAL BARS IN 2 CORES ADJACENT TO MASONRY OPENINGS WIDER THAN 10'

PROVIDE SINGLE-COURSE BOND BEAMS AT BEAM BEARING LOCATIONS, AND AT TOPS OF WALLS.

SINGLE-COURSE BOND BEAMS SHALL HAVE (2) #5 CONTINUOUS, WITH CORNER BARS. SINGLE-COURSE BOND BEAMS CAN SPAN MASONRY OPENINGS UP TO 4'-8" WIDE.

MULTIPLE COURSE BOND BEAMS SHALL HAVE (2) #5 T&B CONTINUOUS. DOUBLE-COURSE BOND BEAMS CAN SPAN MASONRY OPENINGS UP TO 10' WIDE. TRIPLE-COURSE BOND BEAMS CAN SPAN MASONRY OPENINGS UP TO 14' WIDE.

DOWELS SHALL MATCH VERT REINF. SIZE & SPACING.

AT BEAM BEARING LOCATIONS, EMBED 1/2"x6"x12" BEARING PLATES WITH (2) 5/8" Ø X 6"-LONG HEADED STUDS @ 8" O.C., AT THE CENTER OF THE WALL UNO. WELD BEAMS TO THE BEARING PLATES, MIN 3"-LONG FILLET EACH SIDE. GROUT SOLID UNDER THE BEARING PLATES, DOWN TO THE FOUNDATION.

GALV. STEEL LINTELS FOR BRICK SHALL BE L5X3.5X5/16, WITH 8" MIN BEARING EACH END, OVER MASONRY OPENINGS UP TO 6' WIDE.

GALV. STEEL LINTELS FOR BRICK SHALL BE L6X3.5X5/16, WITH 8" MIN BEARING EACH END, OVER MASONRY OPENINGS UP TO 8' WIDE.

GALV. STEEL LINTELS FOR BRICK SHALL BE L7X4X3/8, WITH 12" MIN BEARING EACH END, OVER MASONRY OPENINGS UP TO 10' WIDE.

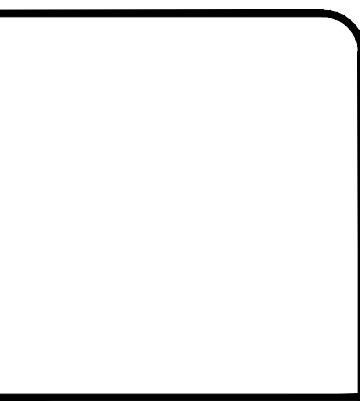
FOR MASONRY OPENINGS WIDER THAN 10', AND WHERE INDICATED, USE GALV. STEEL SHELF ANGLES TO SUPPORT THE BRICK, GALV. L6X6X5/16 W/ 1/2" Ø ADHESIVE ANCHORS W/ 6" EMBED @ 16" O.C. (BUT MIN 2 ANCHORS PER ANGLE) & @ MIN 4" ABOVE BOTTOM OF BOND BEAM, UNO. AT WALLS WITHOUT INSULATION PLUS AIR GAP BETWEEN THE BRICK & CMU, SHELF ANGLES SHALL BE L6x4x5/16 LLV.

**LIGHT GAUGE STEEL**

FOR MIL THICKNESSES OF 18 MILS TO 43 MILS (INCLUSIVE) THE MINIMUM STEEL YIELD STRESS IS 33 KSI. THICKNESSES OF 54 MILS AND GREATER SHALL TO HAVE A MINIMUM YIELD STRESS OF 50 KSI.

ALL WELDING OF LIGHT GAUGE STEEL SHALL BE PERFORMED BY A WELDER QUALIFIED TO WELD LIGHT GAUGE STEEL

LIGHT GAUGE STEEL FRAMING SHALL BE MIN 43 MILS WHERE USED AS BACKUP FOR BRICK FACADE



DATE	8/5/19
REVISION	REBID
NO	1
CD	8/5/19 AS SHOWN
ISSUED FOR:	DESIGNED BY: AP DRAWN BY: AP CHECKED BY: PCP

PROJECT NO.		<b>18050002</b>	
DISCIPLINE		<b>STRUCTURAL</b>	
SHEET NAME		<b>S-01</b>	
SHEET	OF	<b>37</b>	<b>55</b>

**LAKELAND TRANSFER CENTER  
LAKELAND COMMUNITY COLLEGE  
7601 CLOCKTOWER DR., KIRTLAND, OH 44094**

**STRUCTURAL GENERAL NOTES**

## CONCRETE

ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE LATEST SPECIFICATIONS OF THE AMERICAN CONCRETE INSTITUTE AND THE CONCRETE REINFORCING STEEL INSTITUTE. SEE ALSO SPECIFICATIONS

CONCRETE STRENGTHS AT 28 DAYS: 4500 PSI UNO, 4000 PSI FOR FOUNDATIONS.

CONCRETE SHALL BE NORMAL WEIGHT.

SLUMP SHALL BE 4" MAX. FOR FOOTINGS & SLABS, 5" MAX. FOR WALLS. DO NOT ADD WATER AT THE JOB SITE.

WATER/CEMENT RATIO SHALL BE 0.45 MAX FOR FOOTINGS, WALLS & SLABS, UNO.

CEMENT SHALL BE ASTM C150 PORTLAND CEMENT, TYPE I OR II.

USE BLANKETS AS REQUIRED FOR COLD WEATHER CONCRETING; DO NOT USE ACCELERATING ADMIXTURES.

AT CORNERS AND INTERSECTIONS OF FOOTINGS AND WALLS, PROVIDE BENT BARS OF EQUAL SIZE AND AT SAME SPACING AS TYPICAL REINFORCING AROUND CORNER AND/OR INTO ABUTTING WALL. BARS SHALL HAVE EMBEDMENT OF 18 DIAMETERS (12" MINIMUM) PAST INSIDE EDGE OF CORNER.

WHERE CONCRETE IS PLACED DIRECTLY ON GROUND, REINFORCING STEEL SHALL HAVE 3" OF CONCRETE COVER. AT ALL OTHER PLACES, CONCRETE COVER TO BE A MIN. OF 2" UNLESS NOTED OTHERWISE.

ALL FLOOR SLABS SHALL BE STEEL TROWEL FINISHED.

ALL CONCRETE EXPOSED TO WEATHER SHALL BE AIR ENTRAINED, 6% ± 1%

CURE CONCRETE FOR 7 DAYS

REINFORCING STEEL : ASTM A615 OR A616, GRADE 60. MINIMUM LAP LENGTH - SEE SCHEDULES ON THIS SHEET.

WHERE CUTTING HOLES IN EXISTING CONCRETE, DO NOT OVERCUT. DRILL AND/OR GRIND CONCRETE AT THE CORNERS OF THE HOLES, IN ORDER TO AVOID OVERCUTTING AT NEW OPENINGS IN HARDENED CONCRETE.

WHERE CUTTING HARDENED CONCRETE SURFACES WHICH WILL REMAIN EXPOSED, GRIND ALL EXPOSED REBAR DOWN MIN 1.5" BELOW THE CONCRETE SURFACE. DO NOT TORCH CUT. CLEAN, ROUGHEN, APPLY EPOXY BONDING AGENT, AND DRY-PACK PATCHING MORTAR SUITABLE FOR EXTERIOR/WET SERVICE. FOLLOW MANUFACTURERS' RECOMMENDATIONS.

CONCRETE ENCASUREMENT FOR UNDERSLAB CONDUITS SHALL BE 12" MINIMUM CLEAR BELOW BOTTOM OF SLAB.

CONTRACTOR SHALL SUBMIT A COMPLETE & DIMENSIONED MASONRY DOWEL LAYOUT PLAN WITH THE FOUNDATION REBAR SHOP DRAWINGS.

CONTRACTOR SHALL SUBMIT A COMPLETE & DIMENSIONED PLAN WITH THE FOUNDATION REBAR SHOP DRAWINGS.

REINFORCED CONCRETE FOOTINGS AND WALLS ARE 12" THICK, UNO. REINFORCED CONCRETE SLABS AND WALLS ARE REINFORCED WITH #5 @ 12" O.C. EW EF, UNO.

## MINIMUM CONCRETE COVER FOR REINFORCEMENT

- SLABS AND JOISTS:
 

TOP AND BOTTOM BARS FOR DRY CONDITIONS	1 1/2"
FORMED CONCRETE SURFACES EXPOSED TO EARTH, WATER, OR WEATHER, AND OVER OR IN CONTACT WITH SEWAGE AND FOR BOTTOMS BEARING ON WORK MAT, OR SLABS SUPPORTING EARTH COVER:	2"
- BEAMS AND COLUMNS:
 

STIRRUPS, SPIRALS, AND TIES	2"
PRINCIPAL	2 1/2"
- WALLS:
 

	2"
--	----
- FOOTINGS AND BASE SLABS:
 

AT FORMED SURFACES AND BOTTOMS BEARING ON CONCRETE WORK MAT	2"
AT UNFORMED SURFACES AND BOTTOMS BEARING ON WITH EARTH	3"
TOP OF FOOTINGS - SAME AS SLABS OVER TOP OF PILES	2"

## STEEL

ALL STRUCTURAL STEEL FABRICATION AND ERECTION SHALL BE IN ACCORDANCE WITH THE CURRENT EDITION OF THE AISC SPECIFICATIONS FOR THE DESIGN, FABRICATION, AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS AND THE AISC CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES. SEE ALSO SPECIFICATIONS.

STRUCTURAL STEEL - W - ASTM A992; PLATES - ASTM A36; TUBE - ASTM A500, GRADE B Fy = 46 KSI; PIPE - ASTM A53, GRADE B Fy= 35 KSI.

ALL BOLTS, NUTS AND WASHERS SHALL BE ASTM A325-N UNLESS NOTED OTHERWISE.

SPLICING OF STRUCTURAL STEEL IS PROHIBITED EXCEPT AS DETAILED.

ENDS OF ALL COLUMNS SHALL HAVE THE BEARING SURFACE PREPARED TO COMMON PLANE BY MILLING.

WELDING ELECTRODES AWS. ASTM E-70XX.

ALL WELDING SHALL BE DONE BY A QUALIFIED WELDER IN ACCORDANCE WITH THE LATEST EDITION OF THE AMERICAN WELDING SOCIETY STRUCTURAL WELDING CODE.

## ALUMINUM NOTES

- ALL STAIR AND GRATING SUPPORTS AND MATERIALS SPECIFIED AS ALUMINUM SHALL BE 6061-T6 ALUMINUM, EXCEPT BOLTS AND CONCRETE ANCHORS WHICH SHALL BE STAINLESS STEEL.
- ALL ALUMINUM CHANNELS AND I-BEAM SHAPES ARE ALUMINUM ASSOCIATION STANDARD SHAPES.
- ALL ALUMINUM SURFACES IN CONTACT WITH CONCRETE SHALL HAVE A 1/8" BITUMINOUS COATING.
- SEE PROCESS AND ARCHITECTURAL DRAWINGS FOR HANDRAIL, GRATING AND STAIR LOCATIONS.

## ADHESIVE ANCHORS

- ADHESIVE ANCHOR SYSTEMS SHALL BE HILTI HY-200, SIMPSON SET XP, OR APPROVED EQUAL. ANCHOR RODS FOR ADHESIVE ANCHORS SHALL HAVE 50 KSI MINIMUM SPECIFIED YIELD STRENGTH UNLESS OTHERWISE NOTED. SUBMITTAL OF ALL PROPOSED PRODUCTS, WITH TECHNICAL DATA AND CURRENT ICC-ES REPORTS, IS REQUIRED FOR REVIEW AND APPROVAL BY THE ENGINEER.
- ANCHOR RODS SHALL BE GALVANIZED FOR FASTENING GALVANIZED STEEL TO CONCRETE/MASONRY, AND STAINLESS STEEL FOR FASTENING ALUMINUM OR STAINLESS STEEL TO CONCRETE/MASONRY, UNLESS OTHERWISE NOTED.
- INSTALL PER MANUFACTURER'S RECOMMENDATIONS. HOLES SHALL BE DRILLED AND CLEANED IN STRICT ACCORDANCE WITH THE CURRENT MANUFACTURER'S PUBLISHED INSTALLATION INSTRUCTIONS (MPII) MANUFACTURER'S FIELD REPRESENTATIVE SHALL PROVIDE INSTALLATION TRAINING FOR ALL PRODUCTS TO BE USED, PRIOR TO COMMENCEMENT OF THE WORK.
- INSTALLATION OF ADHESIVE ANCHORS SHALL BE PERFORMED BY PERSONNEL CERTIFIED IN THE ACI/CRSI ADHESIVE ANCHOR INSTALLATION PROGRAM. PROOF OF CURRENT CERTIFICATION SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO COMMENCEMENT OF THE INSTALLATION. A RECORD OF TRAINING SHALL BE KEPT ON SITE AND BE MADE AVAILABLE TO THE ENGINEER AS REQUESTED.
- COMPLY WITH OSHA 1926.1153.
- ADHESIVE ANCHORAGE INSTALLATION SHALL HAVE CONTINUOUS SPECIAL INSPECTION.

## LIGHT GAUGE STEEL

FOR MIL THICKNESSES OF 18 MILS TO 43 MILS (INCLUSIVE) THE MINIMUM STEEL YIELD STRESS IS 33 KSI. THICKNESSES OF 54 MILS AND GREATER ARE TO HAVE A MINIMUM YIELD STRESS OF 50 KSI.

ALL WELDING OF LIGHT GAUGE STEEL TO BE PERFORMED BY A WELDER QUALIFIED TO WELD LIGHT GAUGE STEEL.

MINIMUM LAP SPLICE & ANCHORAGE DIMENSION TABLE FOR CAST IN PLACE CONCRETE REINFORCING				
F'c =	4000 or 4500 psi	PER ACI 318-14		s = 4" MIN
BAR SIZE	TOP BARS		OTHER BARS	
	LAP	ANCHORAGE	LAP	ANCHORAGE
#3	15	12	12	12
#4	20	15	15	12
#5	25	19	19	15
#6	29	23	23	18
#7	47	36	36	28
#8	61	47	47	36



DATE  
8/5/19

REVISION  
REBID

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ISSUED FOR:  
AS SHOWN

ISSUE DATE:  
AP

SCALE:  
AP

DESIGNED BY:  
AP

DRAWN BY:  
PCP

CHECKED BY:

LAKELAND TRANSFER CENTER  
LAKELAND COMMUNITY COLLEGE  
7601 CLOCKTOWER DR., KIRTLAND, OH 44094

STRUCTURAL GENERAL NOTES  
& SCHEDULES

PROJECT NO.  
18050002

DISCIPLINE  
STRUCTURAL

SHEET NAME  
S-02

SHEET OF  
38 OF 55

**SPECIAL INSPECTIONS**

THE SPECIAL INSPECTOR SHALL BE A QUALIFIED PERSON WHO SHALL DEMONSTRATE COMPETENCE, TO THE SATISFACTION OF THE BUILDING OFFICIAL, FOR THE INSPECTION OF THE PARTICULAR TYPE OF CONSTRUCTION OR OPERATION REQUIRING SPECIAL INSPECTION. THE SPECIAL INSPECTOR SHALL PROVIDE WRITTEN DOCUMENTATION TO THE BUILDING OFFICIAL DEMONSTRATING HIS OR HER COMPETENCE AND RELEVANT EXPERIENCE OR TRAINING. EXPERIENCE OR TRAINING SHALL BE CONSIDERED RELEVANT WHEN THE DOCUMENTED EXPERIENCE OR TRAINING IS RELATED IN COMPLEXITY TO THE SAME TYPE OF SPECIAL INSPECTION ACTIVITIES FOR PROJECTS OF SIMILAR COMPLEXITY AND MATERIAL QUALITIES. THESE QUALIFICATIONS ARE IN ADDITION TO QUALIFICATIONS SPECIFIED IN OTHER SECTION OF THE OHIO & INTERNATIONAL BUILDING CODES.

SPECIAL INSPECTIONS ARE PROVIDED FOR CONTRACTOR'S INFORMATION. THE CITY WILL PAY FOR ALL SPECIAL INSPECTION REQUIRED. THE CONTRACTOR SHALL NOT INCLUDE ANY COST FOR THE INSPECTIONS IN THE BID.

**SPECIAL INSPECTION REPORT REQUIREMENTS:**

SPECIAL INSPECTORS SHALL KEEP RECORDS OF INSPECTIONS. THE SPECIAL INSPECTOR SHALL FURNISH INSPECTION REPORTS TO THE BUILDING OFFICIAL, AND TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE. REPORTS SHALL INDICATE THAT WORK INSPECTED WAS OR WAS NOT COMPLETED IN CONFORMANCE TO APPROVED CONSTRUCTION DOCUMENTS. DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION. IF THEY ARE NOT CORRECTED THE DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE BUILDING OFFICIAL AND TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE PRIOR TO THE COMPLETION OF THAT PHASE OF WORK. A FINAL REPORT DOCUMENTING REQUIRED SPECIAL INSPECTIONS AND CORRECTION OF ANY DISCREPANCIES NOTED IN THE INSPECTIONS SHALL BE SUBMITTED AT A POINT IN TIME AGREED UPON PRIOR TO THE START OF THE WORK BY THE APPLICANT AND THE BUILDING OFFICIAL.

**BELOW IS A LIST OF THE SPECIAL INSPECTION REQUIREMENTS FOR THIS PROJECT :**

- CONCRETE:**
    - SEE "REQUIRED VERIFICATION AND INSPECTION OF CONCRETE CONSTRUCTION TABLE" FOR CONCRETE ITEMS REQUIRING SPECIAL INSPECTION.
  - STEEL:**
    - WELDING INSPECTION SHALL BE IN ACCORDANCE WITH AWS D1.1.
    - THE BASIS FOR WELDING INSPECTOR QUALIFICATION SHALL BE AWS D1.1
    - SEE "REQUIRED VERIFICATION AND INSPECTION OF STEEL CONSTRUCTION" TABLE FOR STEEL ITEMS REQUIRING SPECIAL INSPECTION.
  - MASONRY:**
    - SEE "TMS 402-13/ACI 530-13/ASCE-13 TABLE 3.1.2 - LEVEL B QUALITY ASSURANCE FOR MASONRY CONSTRUCTION"
  - SOILS:**
    - SEE "REQUIRED SPECIAL INSPECTIONS AND TESTS OF SOILS" TABLE
- ALL MASONRY SHEAR WALLS AND X-BRACING SHOWN ON THE STRUCTURAL DRAWINGS ARE CONSIDERED MAIN-WIND-FORCE AND SEISMIC-FORCE RESISTING SYSTEMS.

REQUIRED SERVICES AND DUTIES FOR EACH PARTY (TESTING AGENCY, INSPECTION AGENCY AND CONTRACTOR) SHALL BE PER THE MOST RECENT EDITION OF ACI530.1/ASCE 6/TMS 602

**PER IBC & OBC SECTION 1706:**

EACH CONTRACTOR RESPONSIBLE FOR THE CONSTRUCTION OF A MAIN-WIND-FORCE OR SEISMIC-FORCE RESISTING SYSTEM LISTED IN THE STATEMENT OF SPECIAL INSPECTION SHALL SUBMIT A WRITTEN STATEMENT OF RESPONSIBILITY TO THE BUILDING OFFICIAL AND THE OWNER PRIOR TO THE COMMENCEMENT OF WORK ON THE SYSTEM OR COMPONENT. THE CONTRACTOR'S STATEMENT OF RESPONSIBILITY SHALL CONTAIN THE FOLLOWING:

- 1) ACKNOWLEDGMENT OF AWARENESS OF THE SPECIAL REQUIREMENTS CONTAINED IN THE STATEMENT OF SPECIAL INSPECTIONS
- 2) ACKNOWLEDGMENT THAT THE CONTROL WILL BE EXERCISED TO OBTAIN CONFORMANCE WITH THE CONSTRUCTION DOCUMENTS APPROVED BY THE BUILDING OFFICIAL
- 3) PROCEDURES FOR EXERCISING CONTROL WITHIN THE CONTRACTOR'S ORGANIZATION, THE METHOD AND FREQUENCY OF REPORTING AND THE DISTRIBUTION OF THE REPORTS
- 4) IDENTIFICATION AND QUALIFICATIONS OF THE PERSON(S) EXERCISING SUCH CONTROL AND THEIR POSITION(S) IN THE ORGANIZATION

**REQUIRED VERIFICATION AND INSPECTION OF WIND RESISTING COMPONENTS**

- ROOF CLADDING - PERIODIC INSPECTION
- WALL CLADDING - PERIODIC INSPECTION

**REFERENCED STANDARDS:**

- 1) AISC 360 - 2010
- 2) AWS D1.4/D1.4M - 2011
- 3) ACI 318 - 2014
- 4) ACI 530 - 2013
- 5) ASTM
- 6) IBC 2015
- 7) OBC 2017
- 8) AWC NDS
- 9) AWC SDPWS

IBC & OBC TABLE 1705.6 REQUIRED SPECIAL INSPECTION AND TESTS OF SOILS		
TYPE	CONTINUOUS SPECIAL INSPECTION	PERIODIC SPECIAL INSPECTION
1. VERIFY MATERIALS BELOW SHALLOW FOUNDATIONS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY.	-	X
2. VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL.	-	X
3. PERFORM CLASSIFICATION AND TESTING OF COMPACTED FILL MATERIALS.	-	X
4. VERIFY USE OF PROPER MATERIALS, DENSITIES AND LIFT THICKNESSES DURING PLACEMENT AND COMPACTION OF COMPACTED FILL.	X	-
5. PRIOR TO PLACEMENT OF COMPACTED FILL, INSPECT SUBGRADE AND VERIFY THAT SITE HAS BEEN PREPARED PROPERLY.	-	X

REQUIRED VERIFICATION AND INSPECTION OF STEEL CONSTRUCTION				
VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	REFERENCED STANDARD	OBC & IBC REFERENCE
<b>1. MATERIAL VERIFICATION OF HIGH-STRENGTH BOLTS, NUTS AND WASHERS:</b>				
A. IDENTIFICATION MARKINGS TO CONFORM TO ASTM STANDARDS SPECIFIED IN THE APPROVED CONSTRUCTION DOCUMENTS.	-	X	AISC 360, SECTION A3.3 AND APPLICABLE ASTM MATERIAL STANDARDS	-
B. MANUFACTURER'S CERTIFICATE OF COMPLIANCE REQUIRED.	-	X	-	-
<b>2. INSPECTION OF HIGH-STRENGTH BOLTING:</b>				
A. SNUG-TIGHT JOINTS.	-	X	AISC 360, N5.6-1	1705.2.1
B. PRETENSIONED JOINTS USING TURN-OF-NUT WITH MATCHMARKING, TWIST-OFF BOLT OR DIRECT TENSION INDICATOR METHODS OF INSTALLATION.	-	X	AISC 360, N5.6-2	
C. PRETENSIONED JOINTS USING TURN-OF-NUT WITHOUT MATCHMARKING OR CALIBRATED WRENCH METHODS OF INSTALLATION.	X	-	AISC 360, N5.6-3	
<b>3. MATERIAL VERIFICATION OF STRUCTURAL STEEL AND COLD-FORMED STEEL DECK:</b>				
A. FOR STRUCTURAL STEEL, IDENTIFICATION MARKINGS TO CONFORM TO AISC 360.	-	X	SDI QA/QC	1705.2.1
B. FOR OTHER STEEL, IDENTIFICATION MARKINGS TO CONFORM TO ASTM STANDARDS SPECIFIED IN THE APPROVED CONSTRUCTION DOCUMENTS.	-	X		1705.2.2
C. MANUFACTURER'S CERTIFIED TEST REPORTS.	-	X		-
<b>4. MATERIAL VERIFICATION OF WELD FILLER MATERIALS:</b>				
A. IDENTIFICATION MARKINGS TO CONFORM TO AWS SPECIFICATION IN THE APPROVED CONSTRUCTION DOCUMENTS.	-	X	AISC 360, SECTION A3.5 AND APPLICABLE AWS A5 DOCUMENTS	-
B. MANUFACTURER'S CERTIFICATE OF COMPLIANCE REQUIRED.	-	X	-	-
<b>5. INSPECTION OF WELDING:</b>				
<b>A. STRUCTURAL STEEL AND COLD-FORMED STEEL DECK:</b>				
1) COMPLETE AND PARTIAL JOINT PENETRATION GROOVE WELDS.	X	-	AWS D1.1	1704.3.1
2) MULTIPASS FILLET WELDS.	X	-		
3) SINGLE-PASS FILLET WELDS >5/16"	X	-		
4) PLUG AND SLOT WELDS.	X	-		
5) SINGLE-PASS FILLET WELDS ≤5/16"	-	X		
6) FLOOR AND ROOF DECK WELDS.	-	X	AWS D1.3	-
<b>B. REINFORCING STEEL:</b>				
1) SHEAR REINFORCEMENT.	X	-	AWS D1.4 ACI 318:SECTION3.5.2	-
2) OTHER REINFORCING STEEL.	-	X	-	-
<b>6. INSPECTION OF STEEL FRAME JOINT DETAILS FOR COMPLIANCE:</b>				
A. DETAILS SUCH AS BRACING AND STIFFENING.	-	X	-	1704.3.2
B. MEMBER LOCATIONS.	-	X		
C. APPLICATION OF JOINT DETAILS AT EACH CONNECTION.	-	X		

IBC & OBC TABLE 1705.3 REQUIRED VERIFICATION AND INSPECTION OF CONCRETE CONSTRUCTION				
TYPE	CONTINUOUS SPECIAL INSPECTION	PERIODIC SPECIAL INSPECTION	REFERENCED STANDARD	OBC & IBC REFERENCE
1. INSPECT REINFORCEMENT, INCLUDING PRESTRESSING TENDONS, AND VERIFY PLACEMENT.	-	X	ACI 318 Ch.20, 25.2, 25.3, 26.6.1-26.6.3	1908.4
2. REINFORCING BAR WELDING: A. VERIFY WELDABILITY OF REINFORCING BARS OTHER THAN ASTM A706; B. INSPECT SINGLE-PASS FILLET WELDS, MAXIMUM $\frac{1}{16}$ "; AND C. INSPECT ALL OTHER WELDS.	-	X	AWS D1.4 ACI 318: 26.6.4	-
3. INSPECT ANCHORS CAST IN CONCRETE.	-	X	ACI 318: 17.8.2	-
4. INSPECT ANCHORS POST-INSTALLED IN HARDENED CONCRETE MEMBERS A. ADHESIVE ANCHORS. B. MECHANICAL ANCHORS.	X	X	ACI 318: 17.8.2.4 ACI 318: 17.8.2	-
5. VERIFY USE OF REQUIRED DESIGN MIX.	-	X	ACI 318: Ch. 19, 26.4.3, 26.4.4	1904.1, 1904.2 1908.2, 1908.3
6. PRIOR TO CONCRETE PLACEMENT FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF THE CONCRETE.	X	-	ASTM C 172 ASTM C 31 ACI 318: 26.4, 26.12	1908.10
7. INSPECT OF CONCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES.	X	-	ACI 318: 26.5	1908.6, 1908.7, 1908.8
8. VERIFY MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES.	-	X	ACI 318: 26.5.3-26.5.5	1908.9
9. INSPECT ERECTION OF PRECAST CONCRETE MEMBERS.	-	X	ACI 318: Ch. 26.8	-
10. VERIFY IN-SITU CONCRETE STRENGTH, PRIOR TO REMOVAL OF SHORES AND FORMS FROM BEAMS AND STRUCTURAL SLABS.	-	X	ACI 318: 26.11.2	-
11. INSPECT FORMWORK FOR SHAPE, LOCATION AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED.	-	X	ACI 318: 26.11.1.2(b)	-

TMS 402-13/ACI 530-13/ASCE-13 TABLE 3.1.2 - LEVEL B QUALITY ASSURANCE FOR MASONRY CONSTRUCTION				
INSPECTION TASK	CONTINUOUS	PERIODIC	REFERENCE FOR CRITERIA	
			TMS 402/ACI 530/ASCE 5	TMS 602/ACI 530.1/ASCE 6
1. COMPLIANCE WITH REQUIRED INSPECTION PROVISIONS OF THE CONSTRUCTION DOCUMENTS AND THE APPROVED SUBMITTALS.	-	X	-	1.5
2. VERIFICATION OF FM PRIOR TO CONSTRUCTION AND FOR EVERY 5,000 SQUARE FEET DURING CONSTRUCTION.	-	X	-	1.4B
3. VERIFICATION OF PROPORTIONS OF MATERIALS IN PREMIXED OR PREBLENDED MORTAR AND GROUT AS DELIVERED TO THE SITE.	-	X	-	1.5B
4. VERIFICATION OF SLUMP FLOW AND VSI AS DELIVERED TO THE SITE FOR SELF-CONSOLIDATING GROUT.	X	-	-	1.5B.1.B.3
<b>5. AS MASONRY CONSTRUCTION BEGINS, VERIFY THAT THE FOLLOWING ARE IN COMPLIANCE:</b>				
A. PROPORTIONS OF SITE-PREPARED MORTAR	-	X	-	2.1, 2.6A
B. CONSTRUCTION OF MORTAR JOINTS.	-	X	-	3.3B
C. LOCATION OF REINFORCEMENT AND CONNECTIONS.	X	-	-	3.4, 3.6 A
<b>6. PRIOR TO GROUTING, VERIFY THAT THE FOLLOWING ARE IN COMPLIANCE:</b>				
A. GROUT SPACE	-	X	-	3.2 D, 3.2 F
B. GRADE, TYPE AND SIZE OF REINFORCEMENT AND ANCHOR BOLTS	-	X	6.1	2.4, 3.4
C. PLACEMENT OF REINFORCEMENT AND CONNECTORS	-	X	6.1, 6.2.1, 6.2.6, 6.2.7	3.2 E, 3.4, 3.6 A
D. PROPORTIONS OF SITE-PREPARED GROUT AND PRESTRESSING GROUT FOR BONDED TENDONS	-	X	-	26 B, 2.4 G.1.B
E. CONSTRUCTION OF MORTAR JOINTS	-	X	-	3.3 B
<b>7. VERIFY DURING CONSTRUCTION:</b>				
A. SIZE AND LOCATION OF STRUCTURAL ELEMENTS	-	X	-	3.3 F
B. TYPE, SIZE AND LOCATION OF ANCHORS, INCLUDING OTHER DETAILS OF ANCHORAGE OF MASONRY TO STRUCTURAL MEMBERS, FRAMES, OR OTHER CONSTRUCTION	-	X	1.2.1(e), 6.1.4.3, 6.2.1	-
C. PREPARATION, CONSTRUCTION, AND PROTECTION OF MASONRY DURING COLD WEATHER (TEMPERATURE BELOW 40°F) OR HOT WEATHER (TEMPERATURE ABOVE 90°F)	-	X	-	1.8 C, 1.8 D
D. PLACEMENT OF GROUT IS IN COMPLIANCE	X	-	-	3.5, 3.6 C
E. OBSERVE PREPARATION OF GROUT SPECIMENS, MORTAR SPECIMENS, AND/OR PRISMS	-	X	-	1.4 B.2.a.3, 1.4 B.2.b.3, 1.4 B.2.c.3, 1.4 B.3, 1.4 B.4

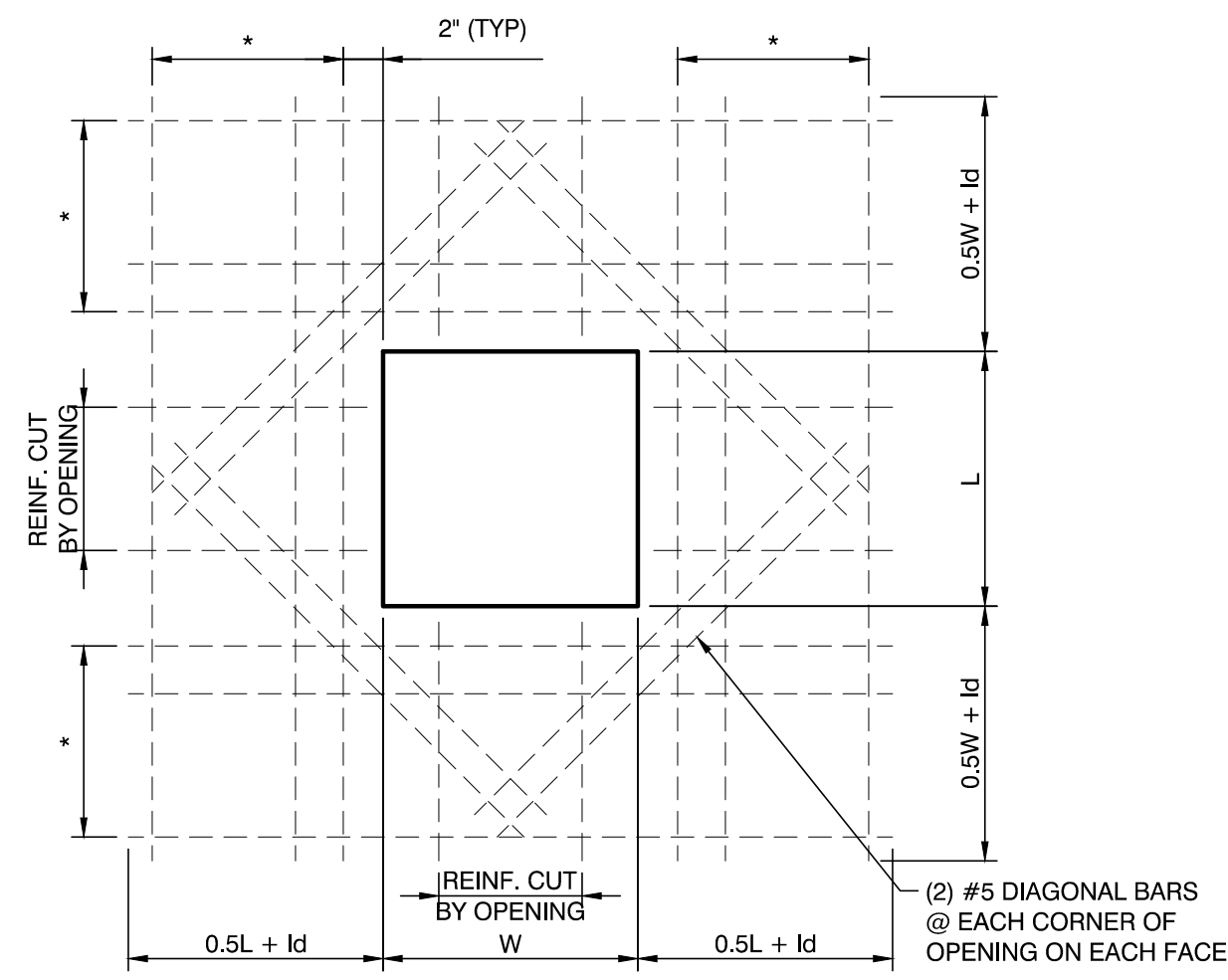


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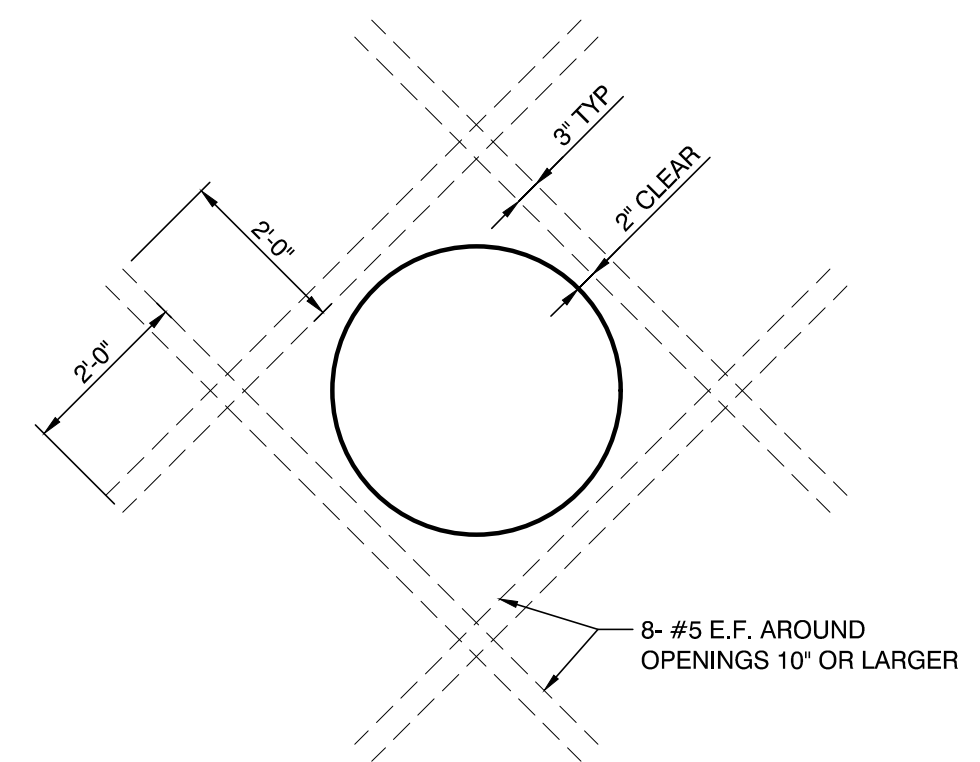
**SPECIAL INSPECTIONS**

PROJECT NO.	<b>18050002</b>
DISCIPLINE	<b>STRUCTURAL</b>
SHEET NAME	<b>S-03</b>
SHEET	OF
<b>39</b>	<b>55</b>

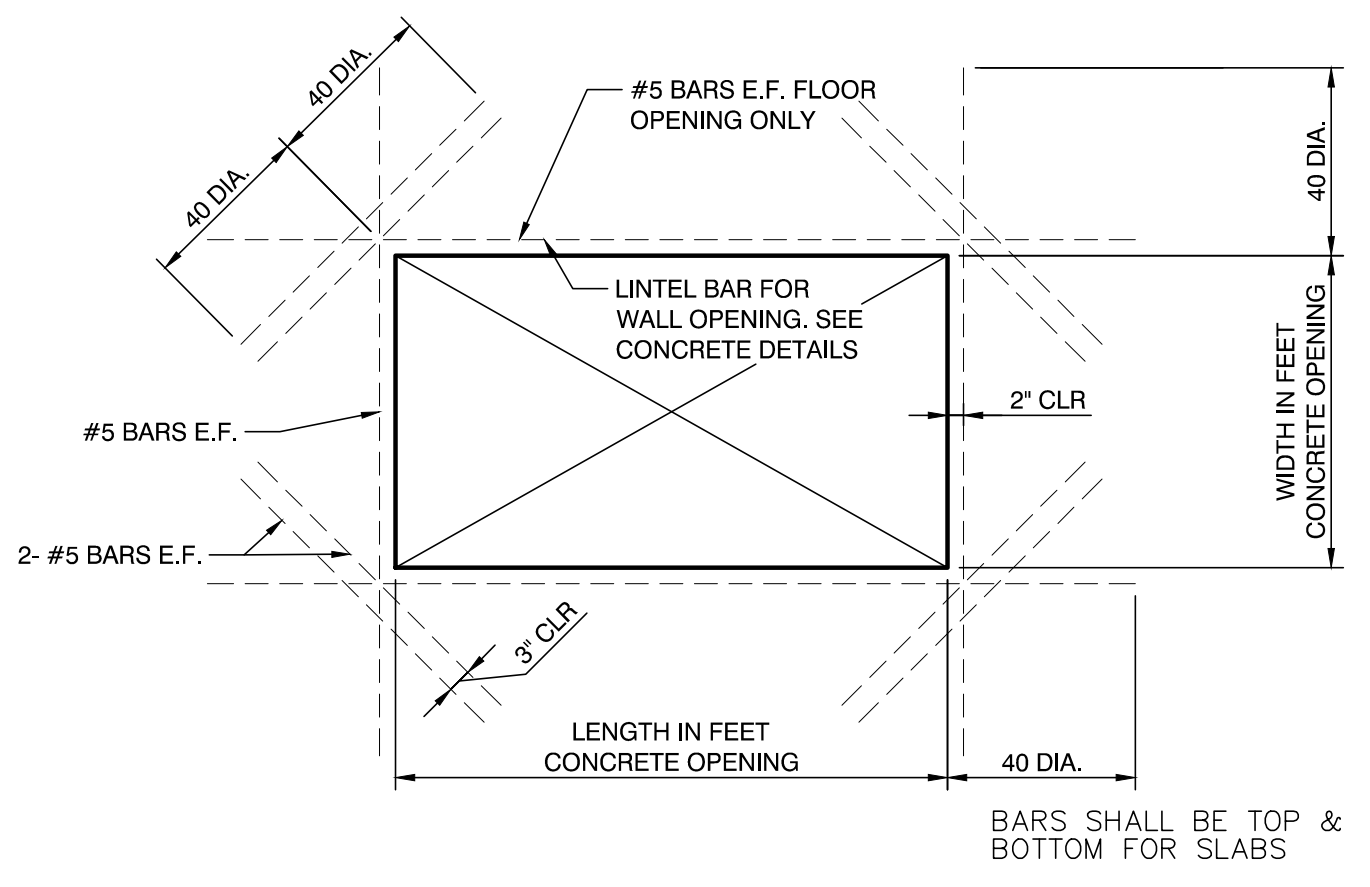


\* ALL REINFORCING WHICH IS CUT BY THE OPENING SHALL BE ADDED EQUALLY TO EACH SIDE OF THE OPENING AND PLACED BETWEEN NORMAL REINFORCING @ 3" O.C.  
 NOTE:  
 1. THIS DETAIL TO BE USED FOR ANY OPENING GREATER THAN 18" Ø OR 18" SQUARE IN WALLS OR SLABS UNLESS FRAMED BY BEAMS OR WALLS.  
 2. L = LAP SPLICE LENGTH AS GIVEN IN LAP SPLICE TABLE ON THIS SHEET.  
 3. ld = ANCHORAGE LENGTH AS GIVEN IN TABLE ON THIS SHEET.

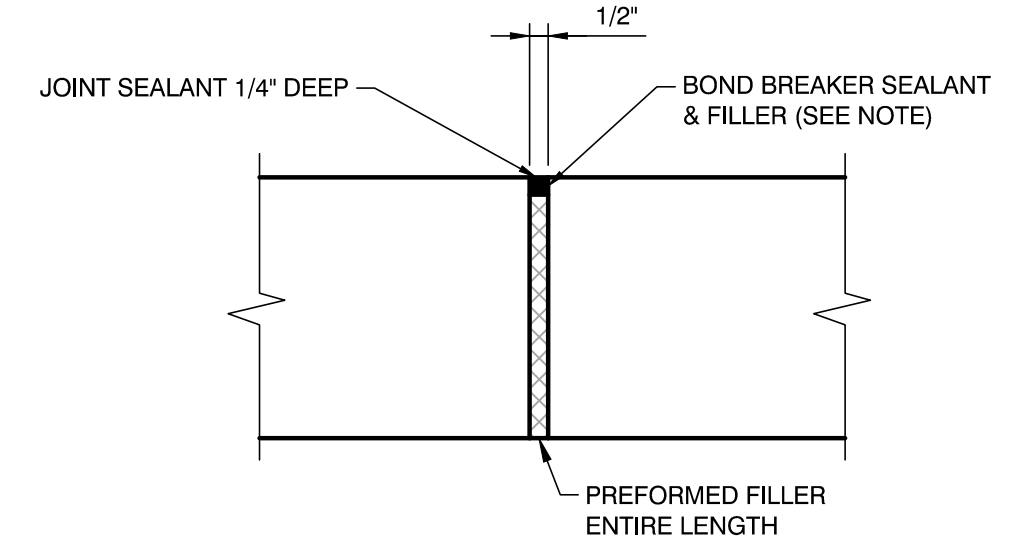
1 S-04 TYP. OPENING REINFORCING  
 SCALE: NTS



4 S-04 TYP. REINF. AROUND ROUND OPNGS. IN REINF. CONCRETE SLABS & WALLS  
 SCALE: NTS

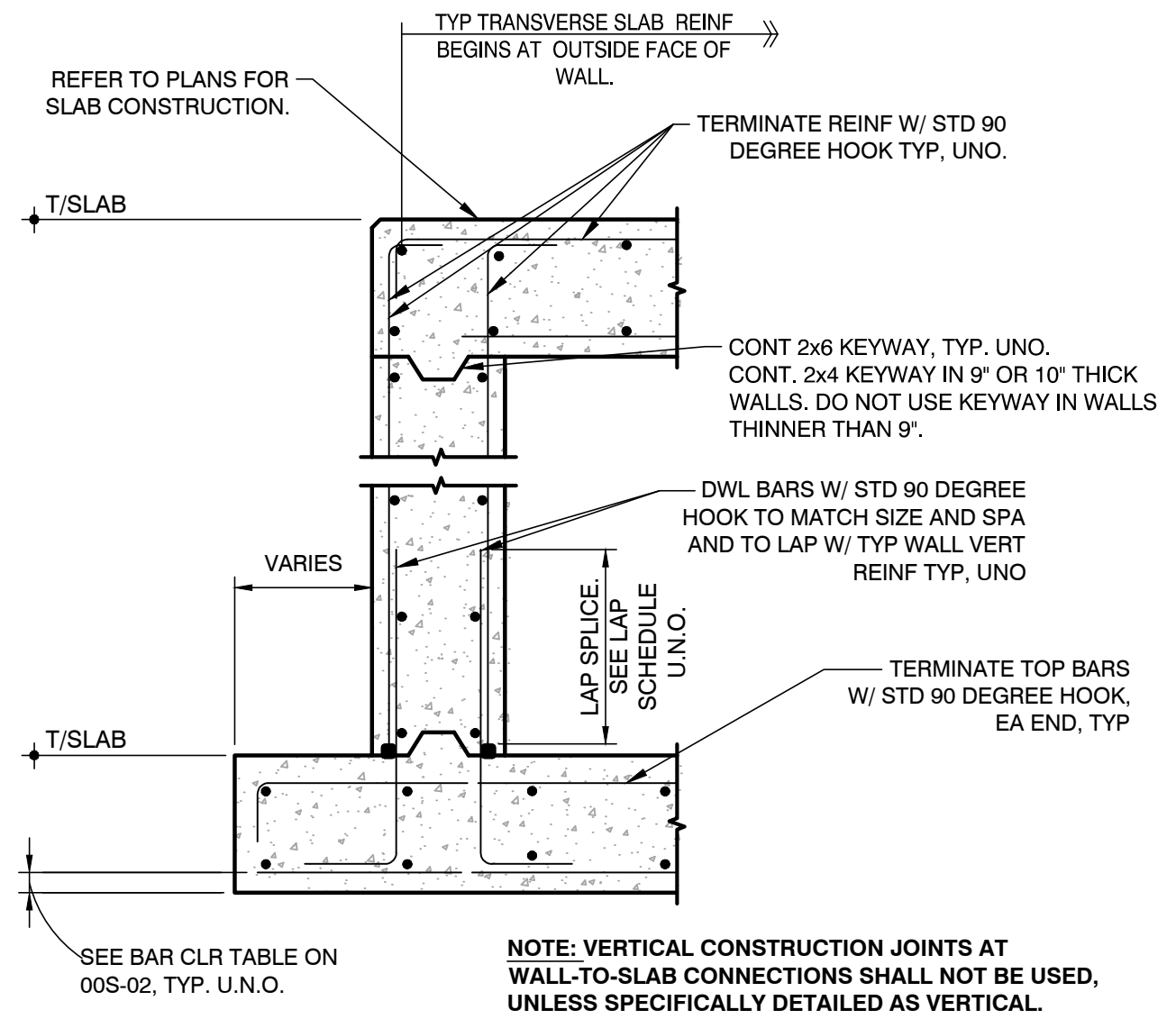


7 S-04 TYP. REINF. AROUND OPNGS. IN REINF. CONCRETE SLABS & WALLS  
 SCALE: NTS



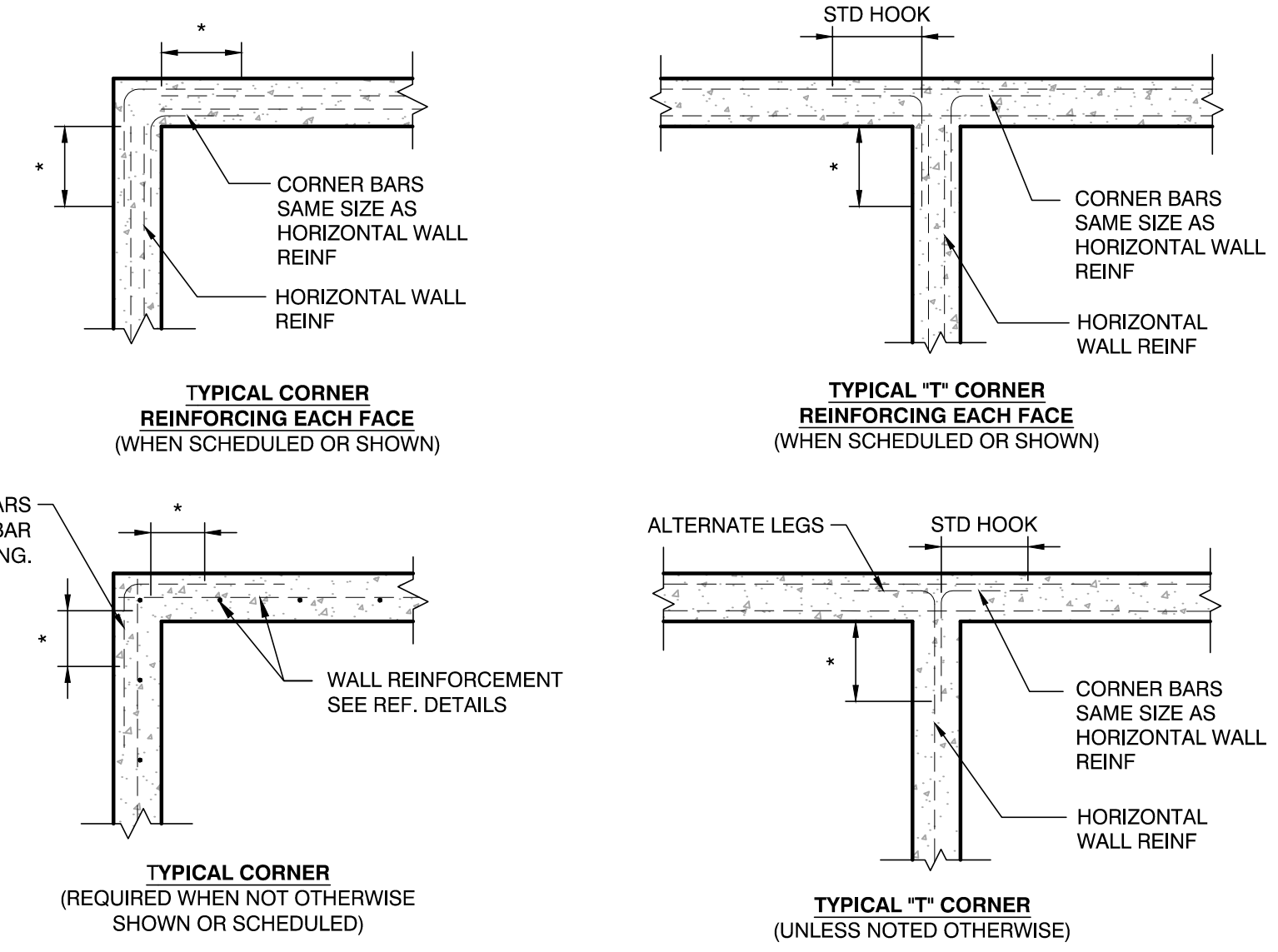
NOTE: APPLY BOND BREAKER SUCH AS FOIL OR POLYETHYLENE TAPE BETWEEN FILLER MATERIAL AND JOINT SEALANT ONLY. SEALANT SHALL ADHERE TO BOTH CONCRETE SURFACES ONLY.

2 S-04 TYPE "A" JOINT  
 SCALE: NTS

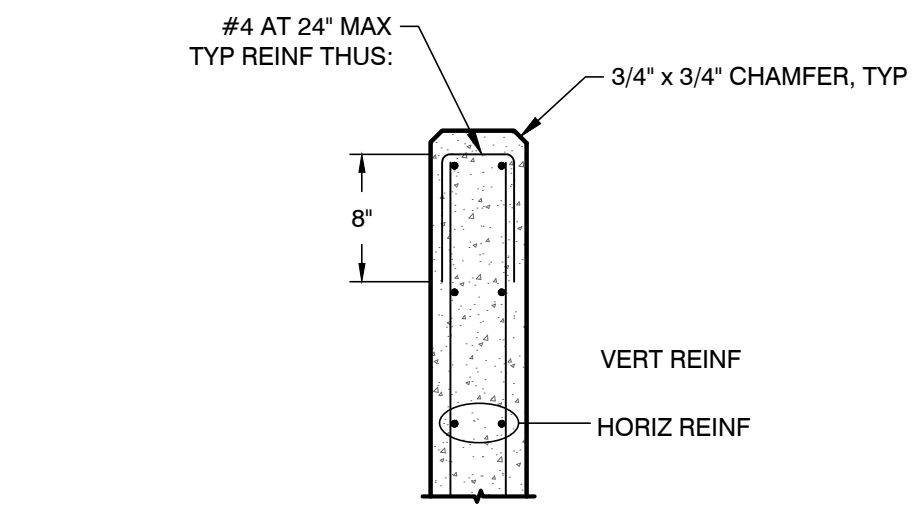


NOTE: VERTICAL CONSTRUCTION JOINTS AT WALL-TO-SLAB CONNECTIONS SHALL NOT BE USED, UNLESS SPECIFICALLY DETAILED AS VERTICAL.

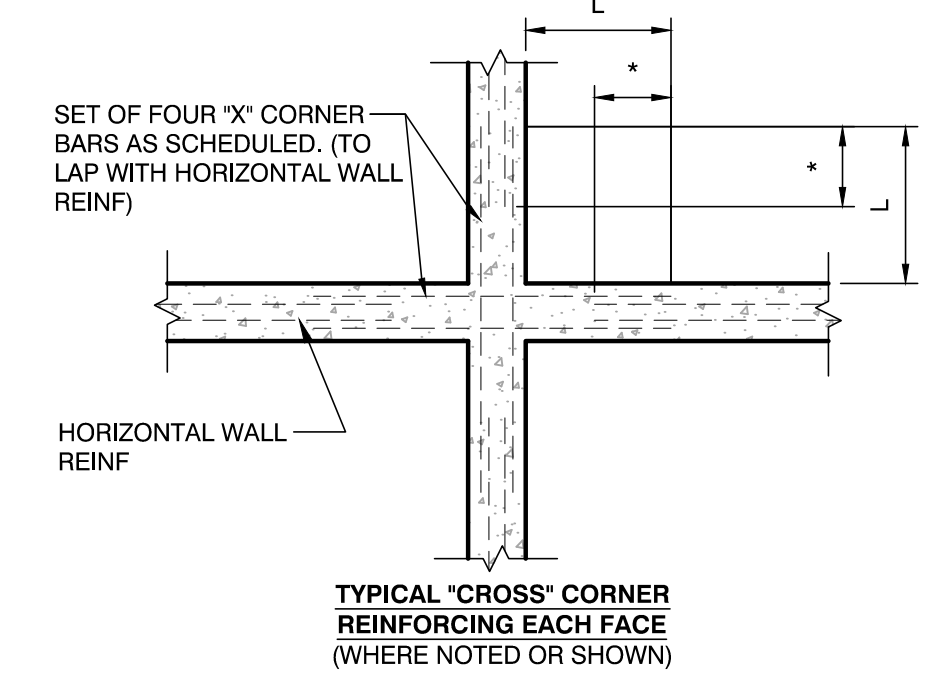
5 S-04 TYP. CONCRETE WALLS/SLAB CONSTRUCTION JOINT DETAIL  
 SCALE: NTS



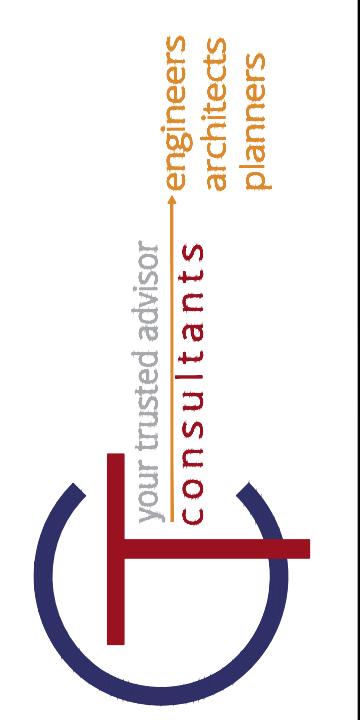
3 S-04 TYP. HORIZONTAL CORNER CONCRETE REINFORCING DETAILS  
 SCALE: NTS



6 S-04 TYP. DOWELED EXPOSED CONCRETE WALLS  
 SCALE: NTS



NOTE:  
 1. VERTICAL REINFORCING NOT SHOWN  
 2. L = 4'-0" UNLESS NOTED OTHERWISE  
 3. \* = CLASS 'B' SPLICE LENGTH AS GIVEN IN "MINIMUM LAP SPLICE AND ANCHORAGE TABLE" ON THIS DRAWING.

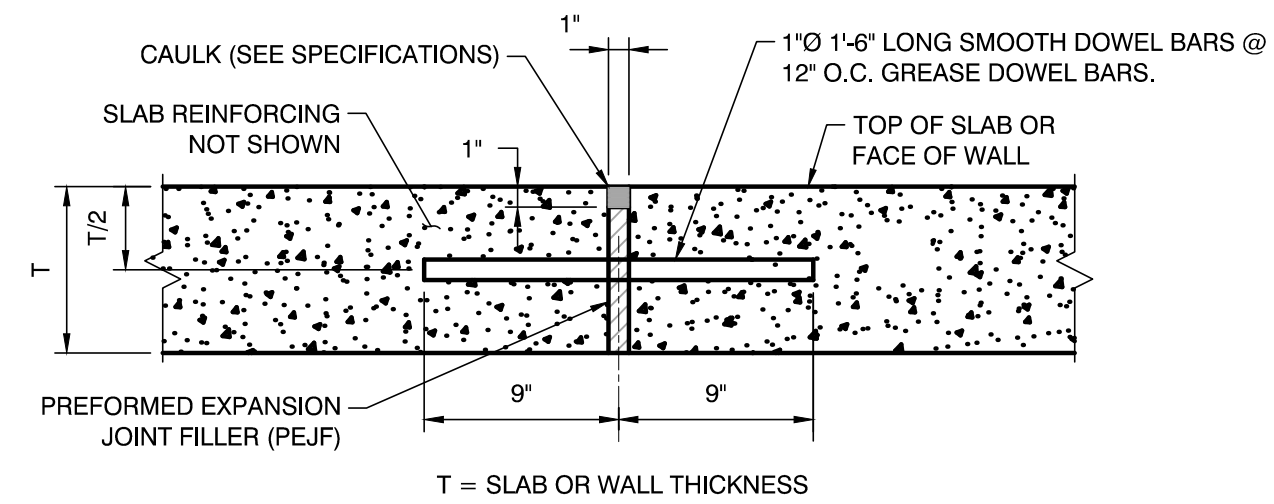


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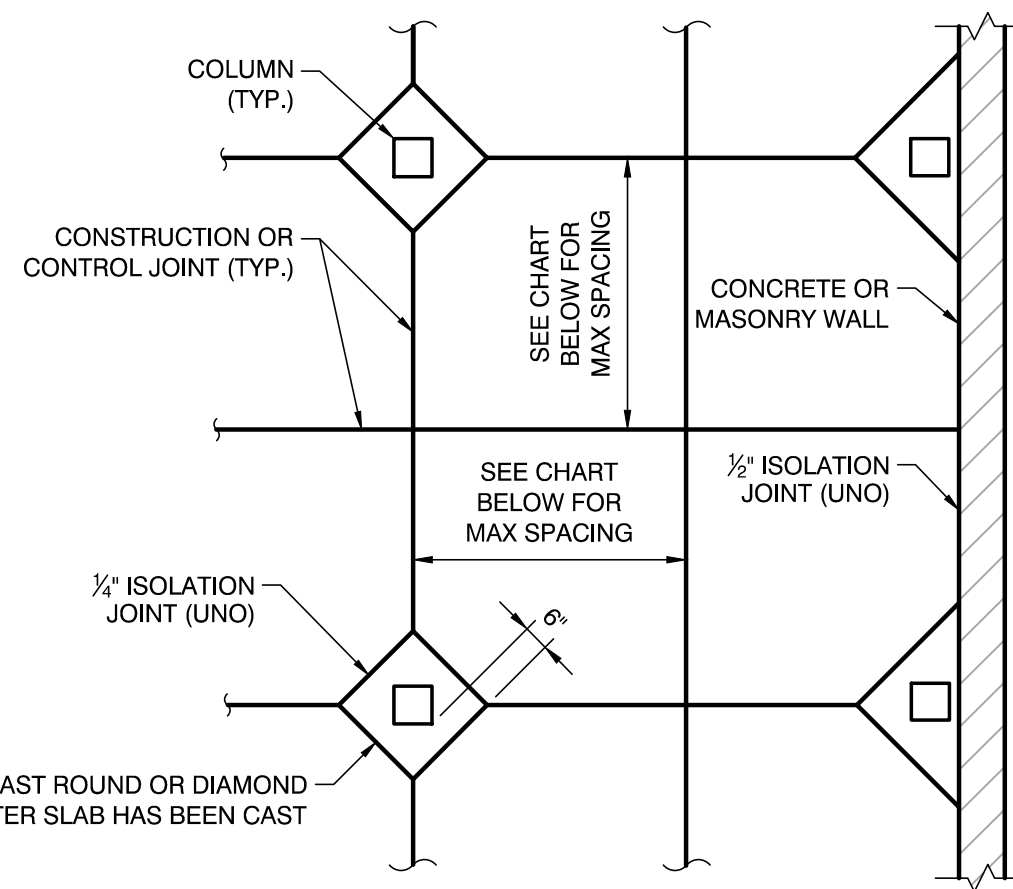
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**TYPICAL CONCRETE DETAILS**

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DISCIPLINE	STRUCTURAL
SHEET NAME	S-04
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OF	55

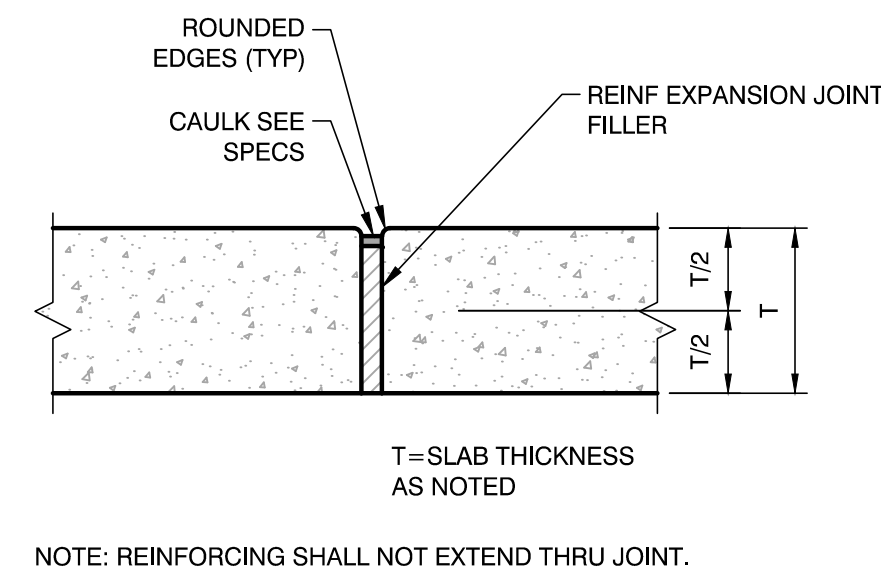




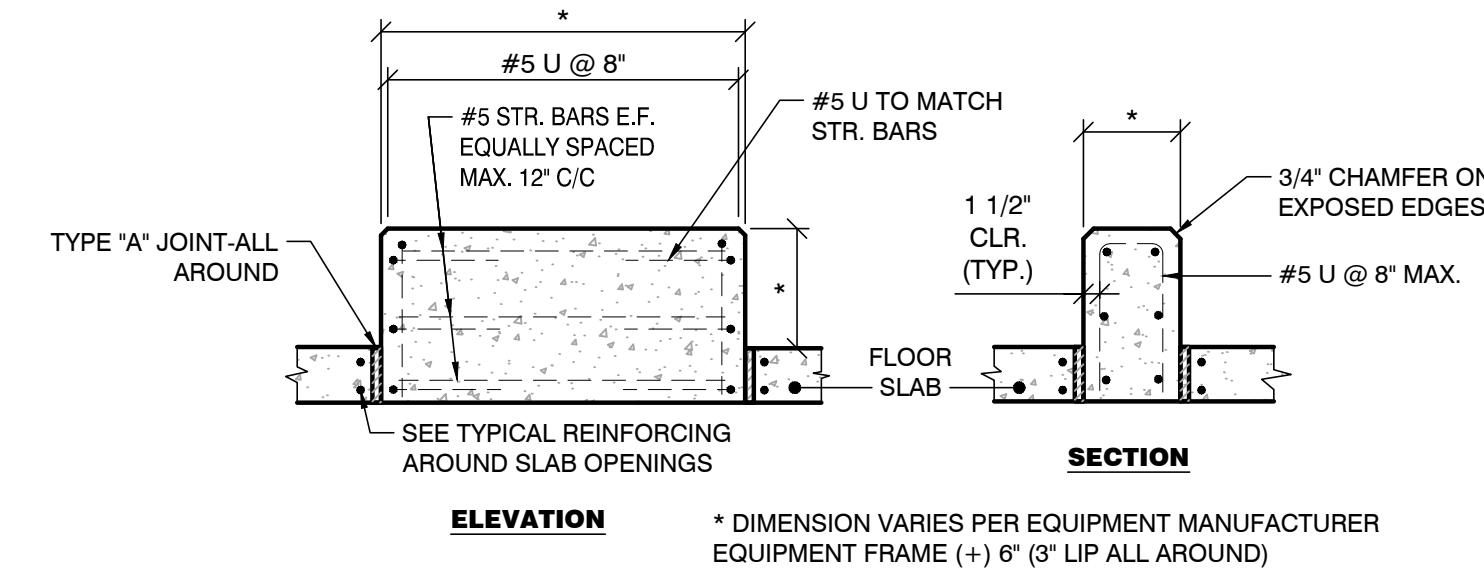
**NOTES:**  
 EXPANSION JOINT FILLER SHALL BE HELD RIGIDLY IN POSITION AND SHALL BE CONTINUOUS. THE FACE OF THE EXPANSION JOINT SHALL BE PERPENDICULAR TO THE CONCRETE SURFACE AND SHALL NOT BE SKEWED HORIZONTALLY. SMOOTH DOWELS SHALL BE USED, AND FREE MOVEMENT SHALL BE PROVIDED BY APPLYING A COAT OF AN OIL SUCH AS S.A.E. 140 OR OTHER 'BOND-BREAKING' MATERIAL PRIOR TO PLACING THE CONCRETE.\* ONE FREE END OF EACH DOWEL SHALL BE EQUIPPED, AFTER COATING, WITH A SLEEVE OF METAL OR OTHER APPROVED MATERIAL APPROXIMATELY 3" LONG, DESIGNED WITH CRIMPED END AND OVERLAPPING SEAMS, FITTING CLOSELY AROUND THE DOWEL. EACH SLEEVE SHALL BE PROVIDED WITH A DEPRESSION OR INTERIOR PROJECTION TO ACT AS A STOP FOR THE DOWEL, SUFFICIENTLY DISTANT FROM THE CRIMPED END TO ALLOW 1" FOR LONGITUDINAL DOWEL MOVEMENT WITH SLAB EXPANSION. PROPER SIZE DOWEL HOLES SHALL BE PUNCHED OR DRILLED INTO THE PREFORMED EXPANSION JOINT FILLER IN ORDER TO ENSURE TIGHT FITTING DOWELS.



SLAB THICKNESS	MAX JOINT SPACING UNO
4"	8'
5"	10'
6"	15'
7"	18'
8"	20'

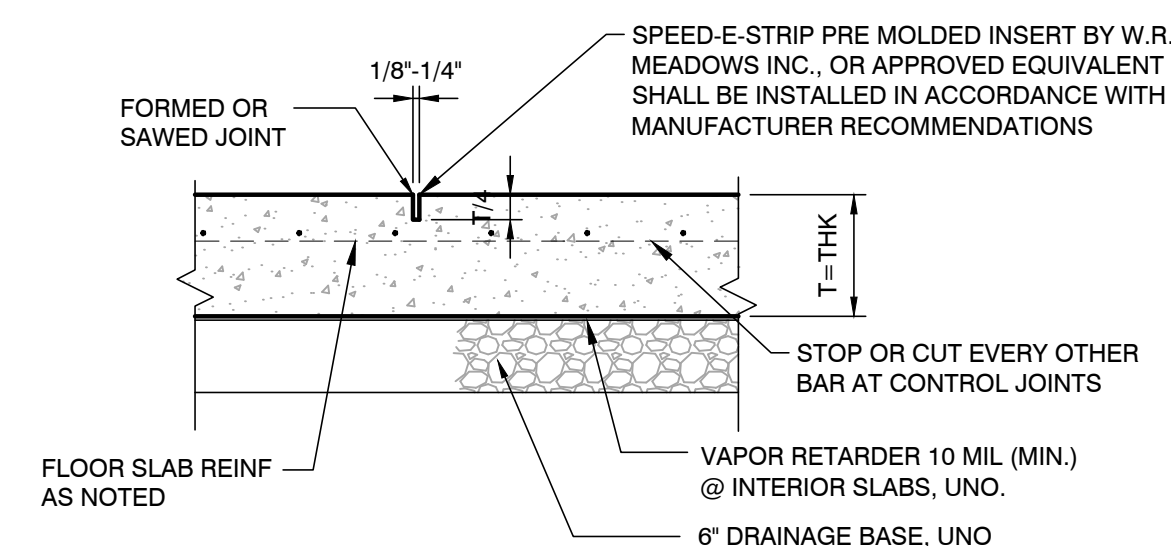


NOTE: REINFORCING SHALL NOT EXTEND THRU JOINT.



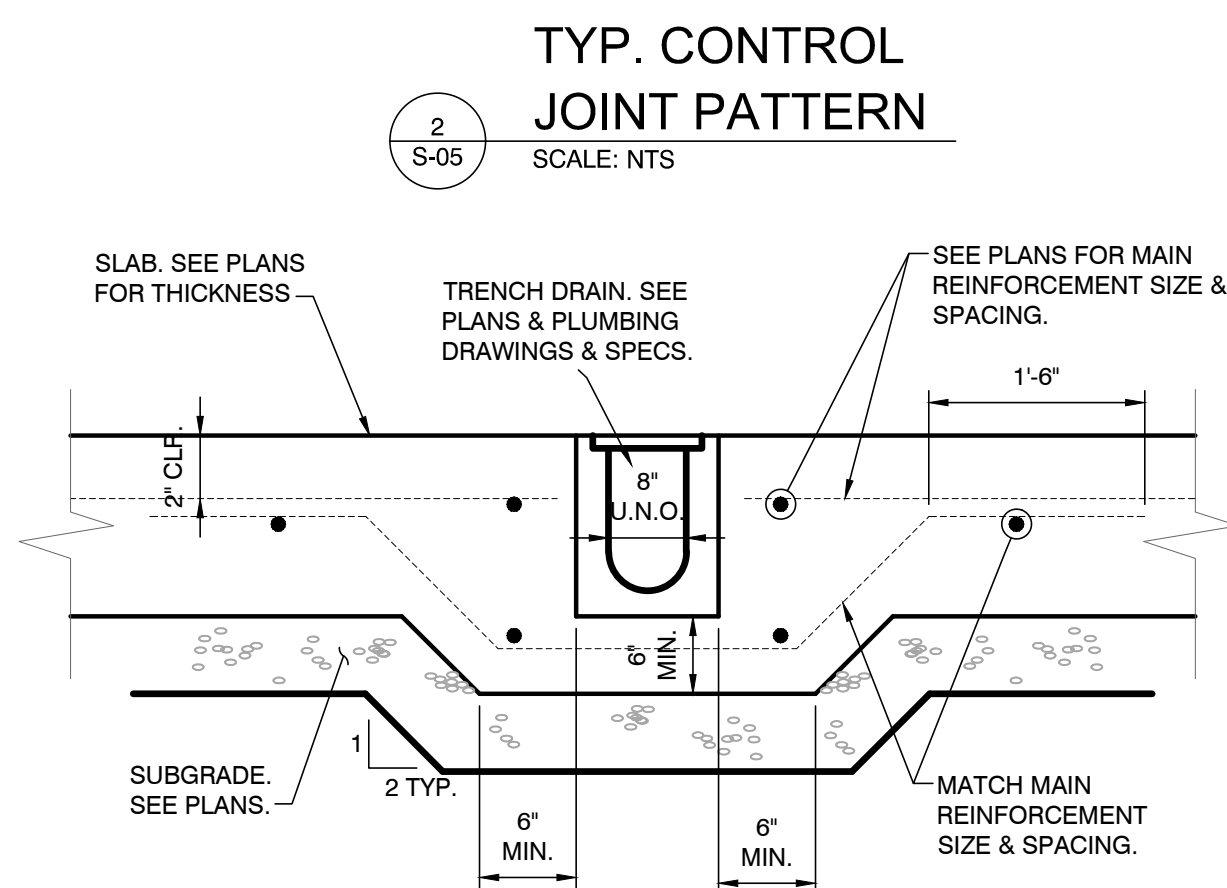
\* DIMENSION VARIES PER EQUIPMENT MANUFACTURER EQUIPMENT FRAME (+) 6\"/>

**1**  
 S-05  
**TYP. DOWELED EXPANSION JOINT DETAIL**  
 SCALE: NTS

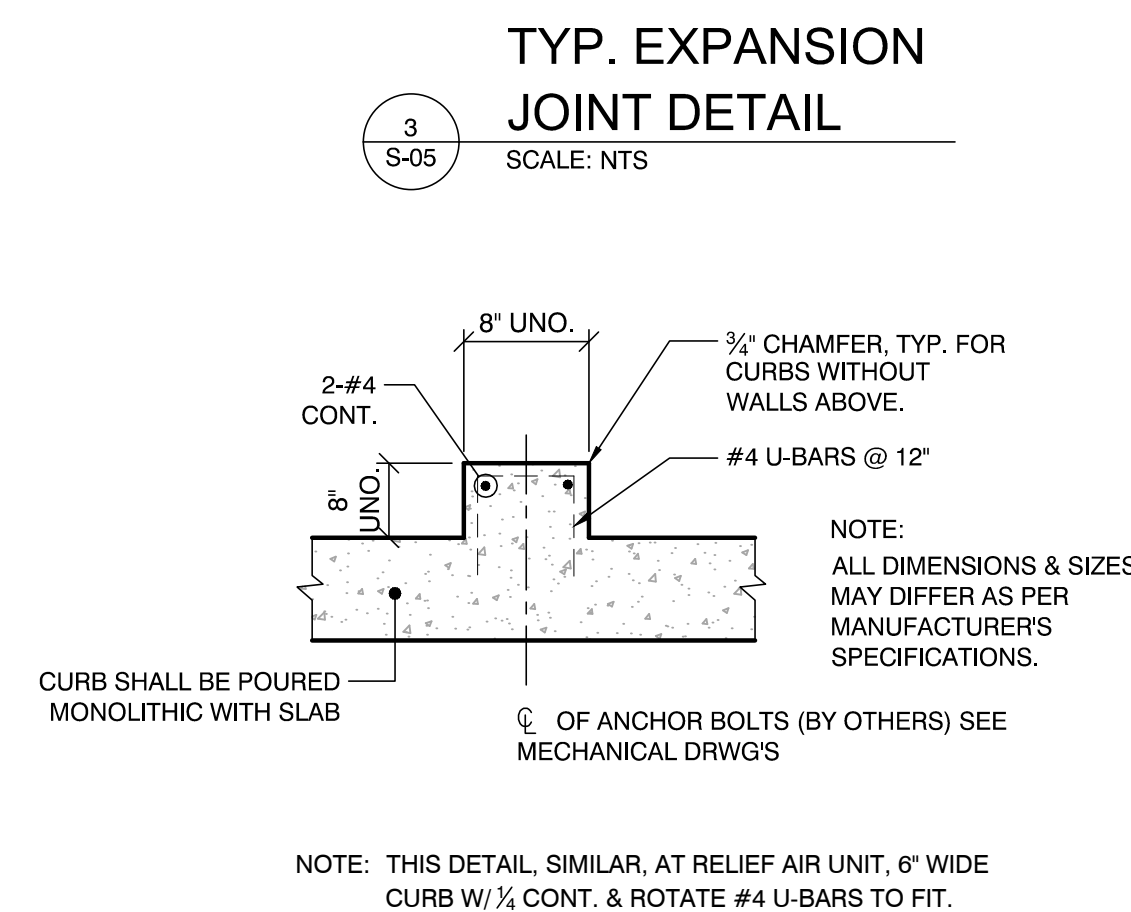


**NOTE:**  
 1. THE 'SOFF-CUT' MACHINE BY SOFF-CUT INTERNATIONAL MAY BE USED TO CUT CONTROL JOINTS WITHIN APPROXIMATELY 2 HOURS AFTER FINAL FINISHING. THE DEPTH OF CUT SHALL BE AS RECOMMENDED BY THE MANUFACTURER.  
 2. IF CONTROL JOINTS ARE SAW CUT PER NOTE #1 THEY SHALL BE FLUSHED WITH CLEAN WATER, ALLOWED TO DRY AND THEN FILLED WITH A JOINT SEALANT.

**5**  
 S-05  
**TYPICAL SLAB-ON-GRADE W/ CONTROL JOINT TYPE "CJ"**  
 SCALE: NTS

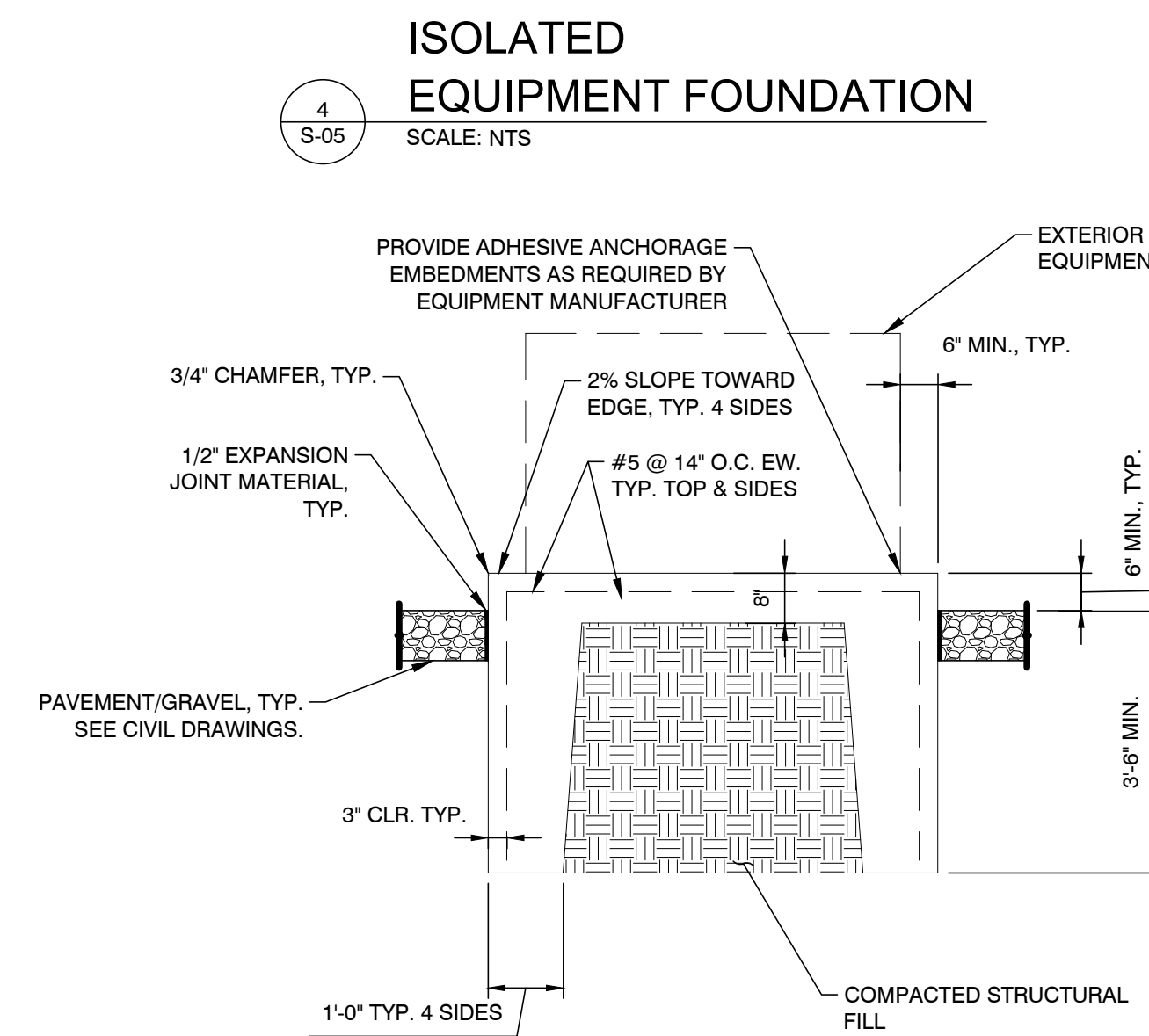


**6**  
 S-05  
**TYP. TRENCH DRAIN**  
 SCALE: NTS



NOTE: THIS DETAIL, SIMILAR, AT RELIEF AIR UNIT, 6" WIDE CURB W/ 1/2" CONT. & ROTATE #4 U-BARS TO FIT.

**7**  
 S-05  
**EQUIPMENT CURB DETAIL**  
 SCALE: NTS



**8**  
 S-05  
**TYP. EXTERIOR EQUIPMENT FOUNDATION**  
 SCALE: NTS



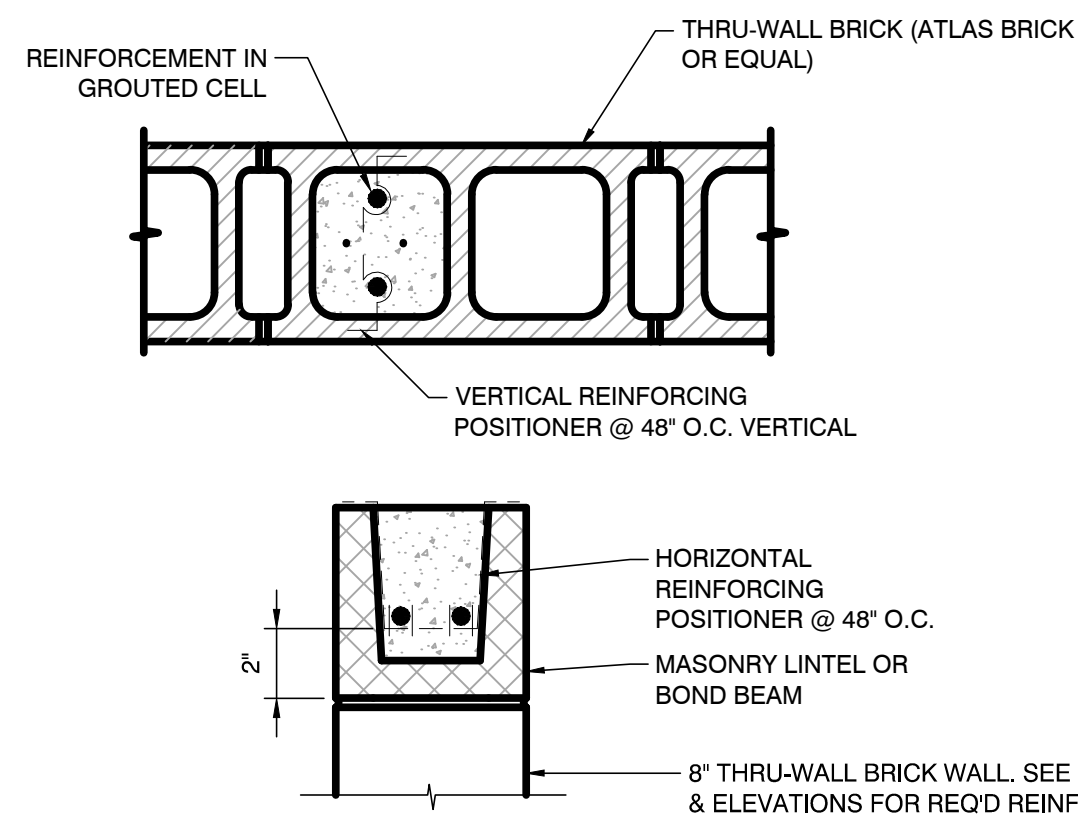
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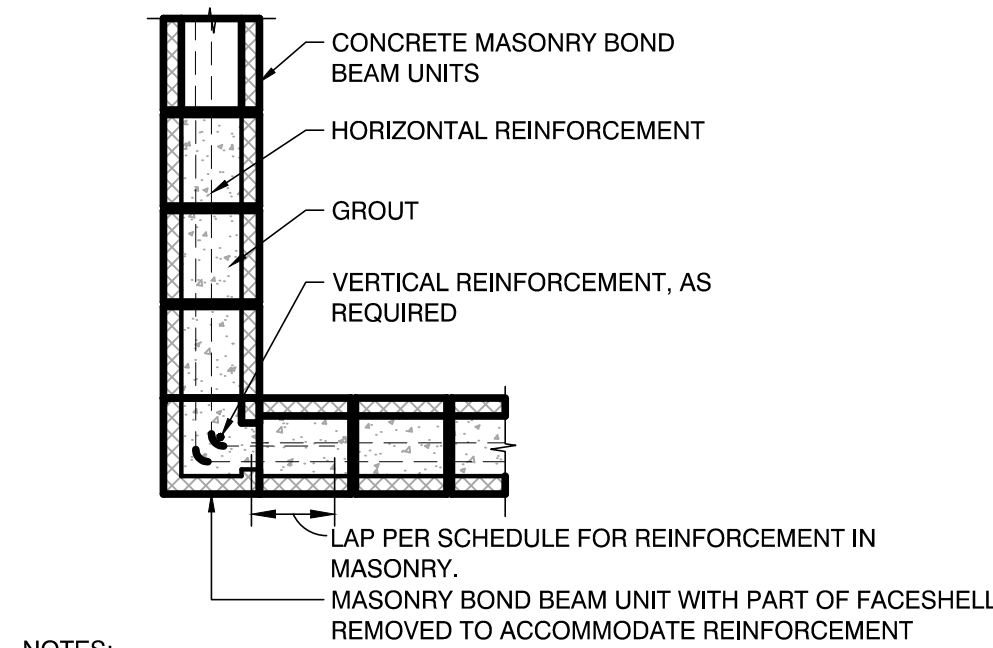
PROJECT NO.	18050002
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SHEET NAME	S-05
SHEET	41
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**TYPICAL SLAB DETAILS**



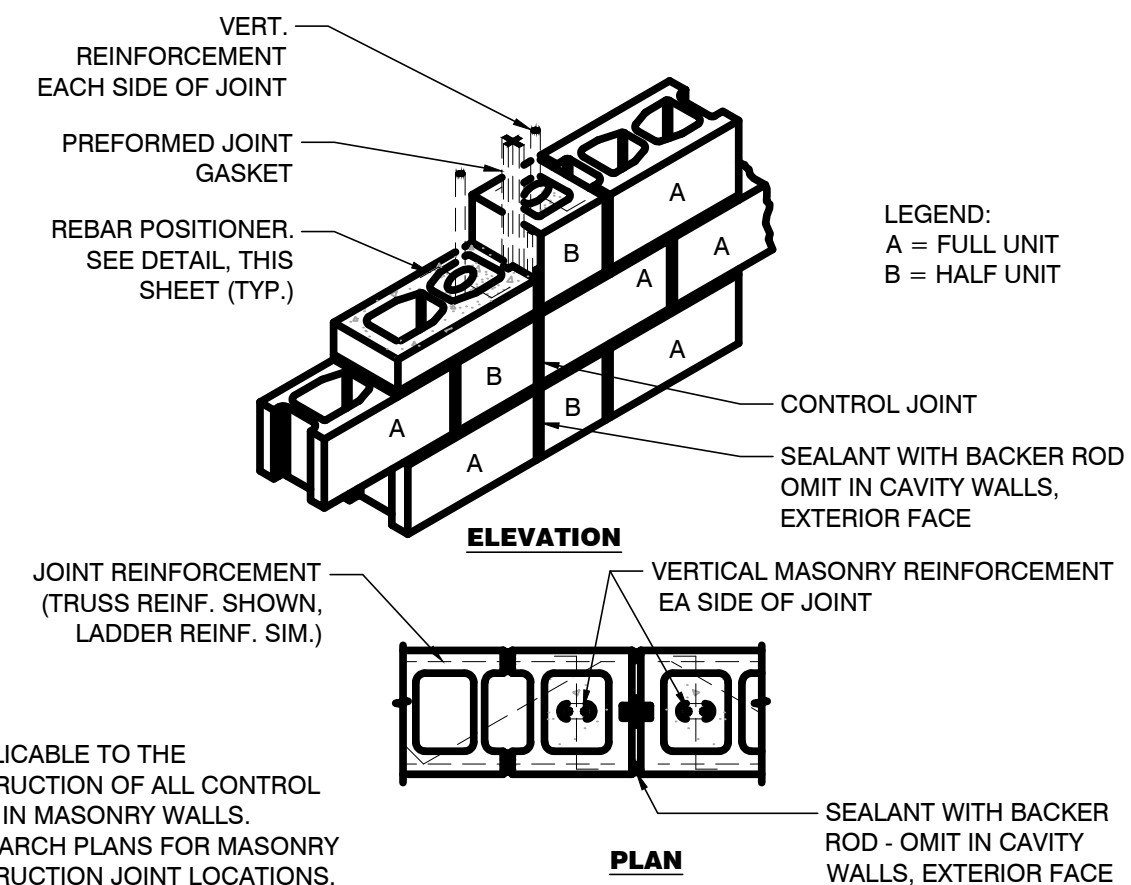
**1**  
S-06  
**TYP. CMU REINFORCING POSITIONERS**  
SCALE: NTS



**NOTES:**

1. WHEN THE BOND BEAM CONTAINS TWO REINFORCING BARS AT THE SAME ELEVATION, ONLY ONE NEEDS TO BE LAPPED AROUND THE CORNER.
2. AS AN ALTERNATIVE TO USING BOND BEAM UNITS AS SHOWN, STANDARD UNITS CAN BE SAW-CUT TO REMOVE PART OF THE CROSS-WEBS TO ACCOMMODATE THE HORIZONTAL REINFORCEMENT.

**2**  
S-06  
**BOND BEAM AT CORNER**  
SCALE: NTS

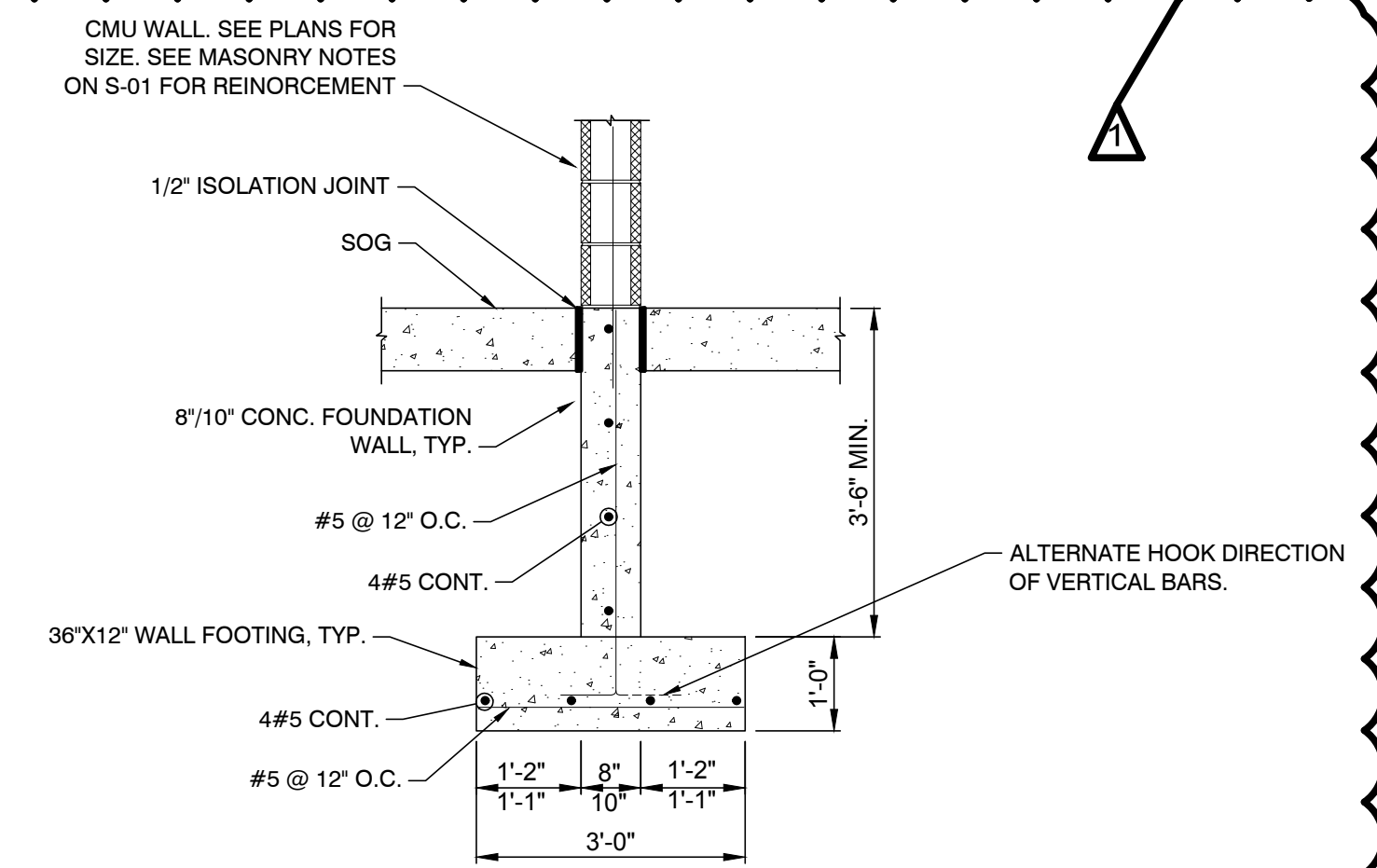


**LEGEND:**  
A = FULL UNIT  
B = HALF UNIT

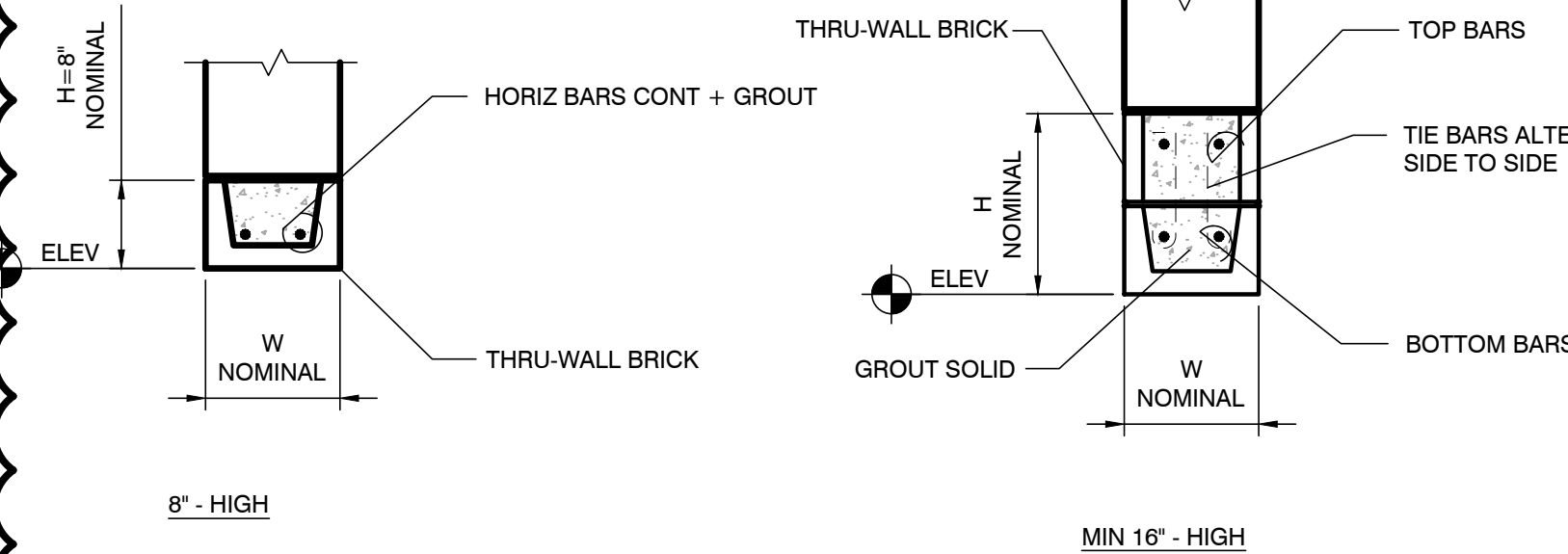
**NOTES:**

1. APPLICABLE TO THE CONSTRUCTION OF ALL CONTROL JOINTS IN MASONRY WALLS.
2. SEE ARCH PLANS FOR MASONRY CONSTRUCTION JOINT LOCATIONS.

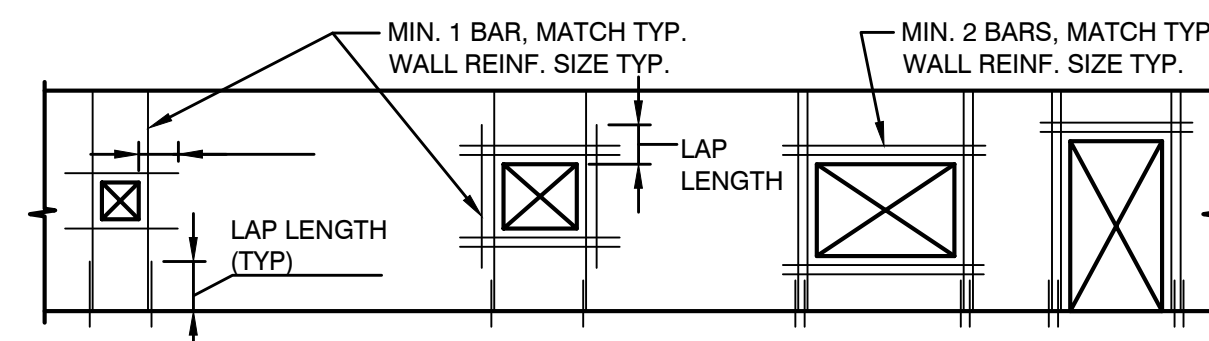
**3**  
S-06  
**VERTICAL CONSTRUCTION JOINT ISOMETRIC**  
SCALE: NTS



**4**  
S-06  
**TYP. INT. MASONRY WALL FOUNDATION**  
SCALE: 1/2" = 1'-0"



**5**  
S-06  
**TYP. MASONRY LINTEL**  
SCALE: NTS



**CASE I:**  
APPLIES TO (1) ALL OPENINGS IN NON-BEARING MASONRY WALLS AND (2) ANY OPENING 2- FEET OR LESS BOTH WAYS IN LOAD BEARING OR EXTERIOR MASONRY WALLS.

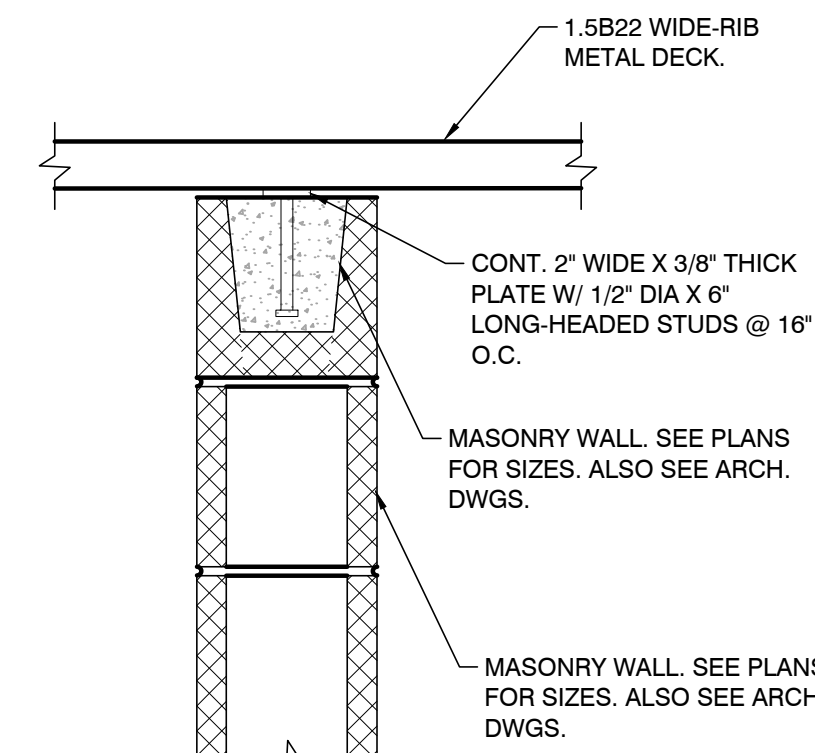
**CASE II:**  
APPLIES TO LOAD BEARING AND EXTERIOR MASONRY WALLS WHEN OPENING EXCEEDS 2- FEET BUT NOT MORE THAN 4- FEET IN EITHER DIRECTION.

**CASE III:**  
APPLIES TO LOAD BEARING AND EXTERIOR MASONRY WALLS WHEN OPENING EXCEEDS 4- FEET IN EITHER DIRECTION AND ALL OPENING IN MASONRY SHEAR WALLS.

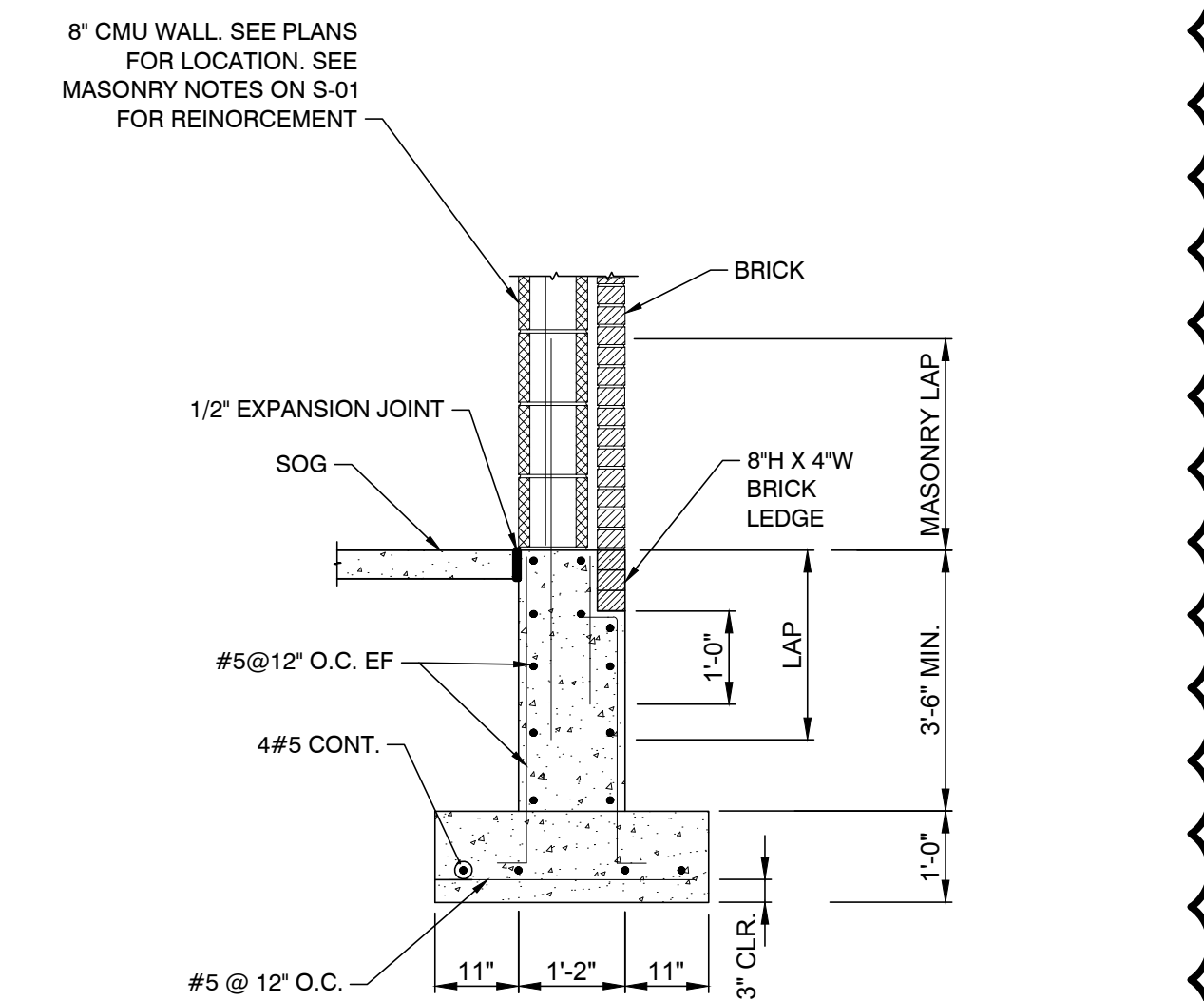
**NOTES:**

1. VERTICAL REINFORCEMENT CONSISTING OF 2 BARS SHALL BE PLACED IN SEPARATE ADJACENT CELLS.
2. VERTICAL BARS SHALL BE OF THE SAME SIZE, EXTENT, AND ANCHORAGE AS THE TYPICAL REINFORCING IN THAT WALL UNLESS OTHERWISE INDICATED.
3. VERTICAL BARS CAN BE PART OF NORMAL REINFORCING IN THE WALL.
4. REINFORCEMENT AT TOP OF OPENING SHALL NOT BE LESS THAN THAT REQUIRED BY THE LINTEL SCHEDULE.
5. SEE SCHEDULES FOR LAP LENGTHS REQUIRED FOR REINFORCEMENT IN MASONRY WALLS.

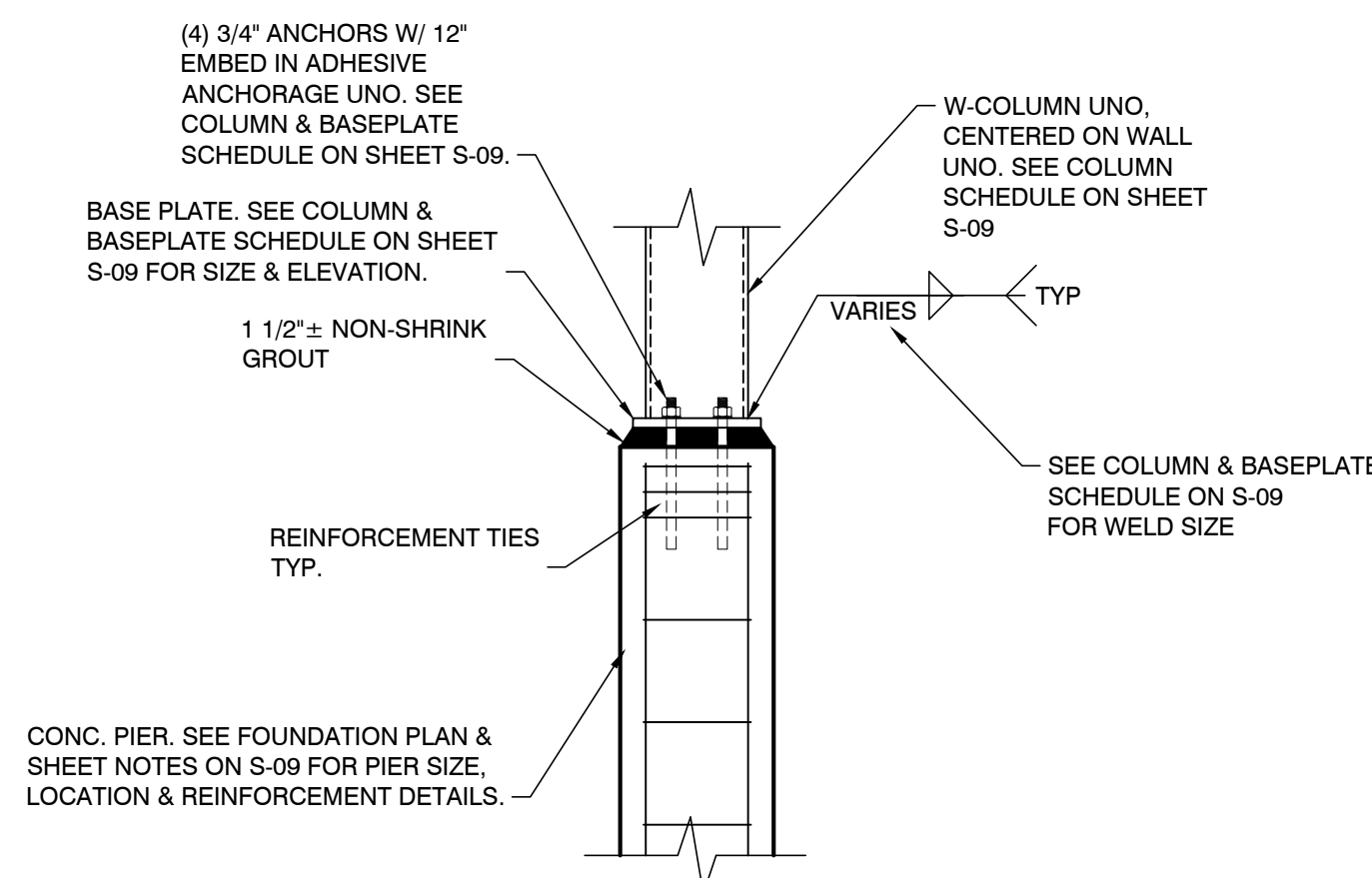
**6**  
S-06  
**REINFORCEMENT AROUND OPENING IN CMU**  
SCALE: NTS



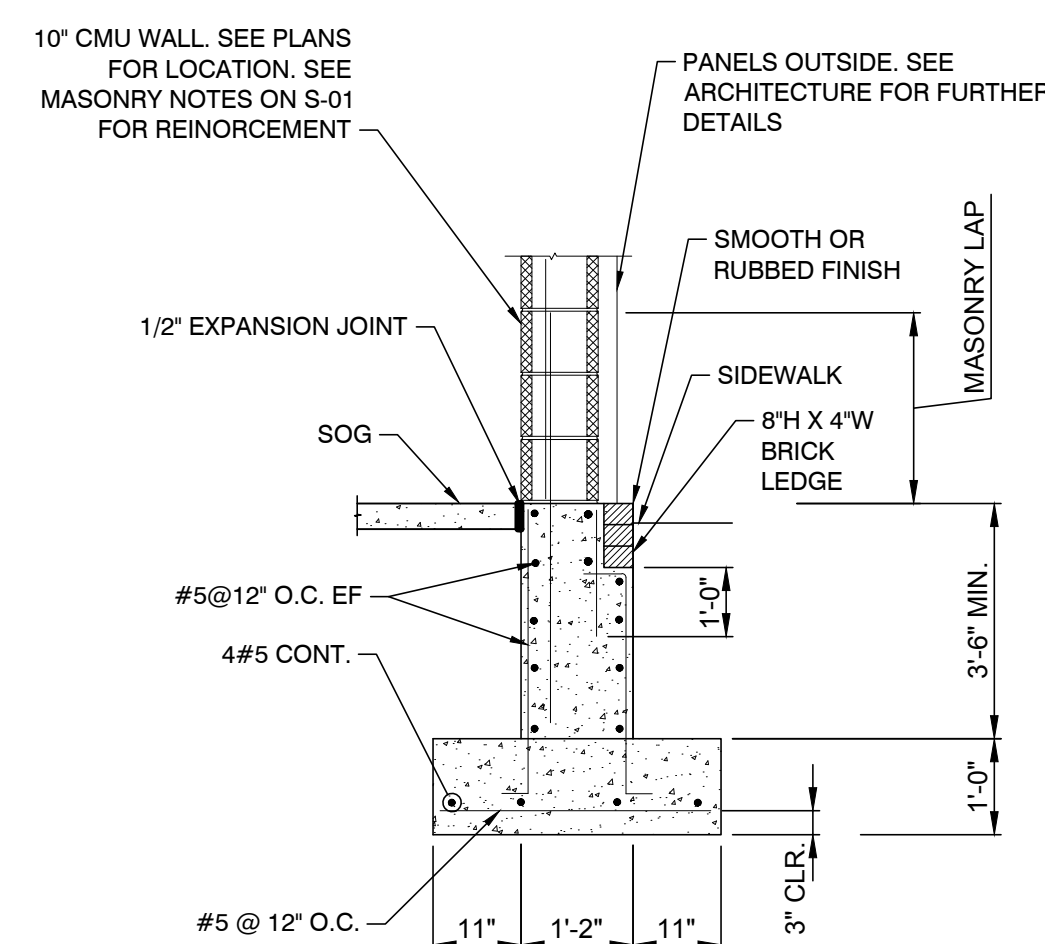
**7**  
S-06  
**TYP. ROOF DECK TO MASONRY WALL CONNECTION**  
SCALE: NTS



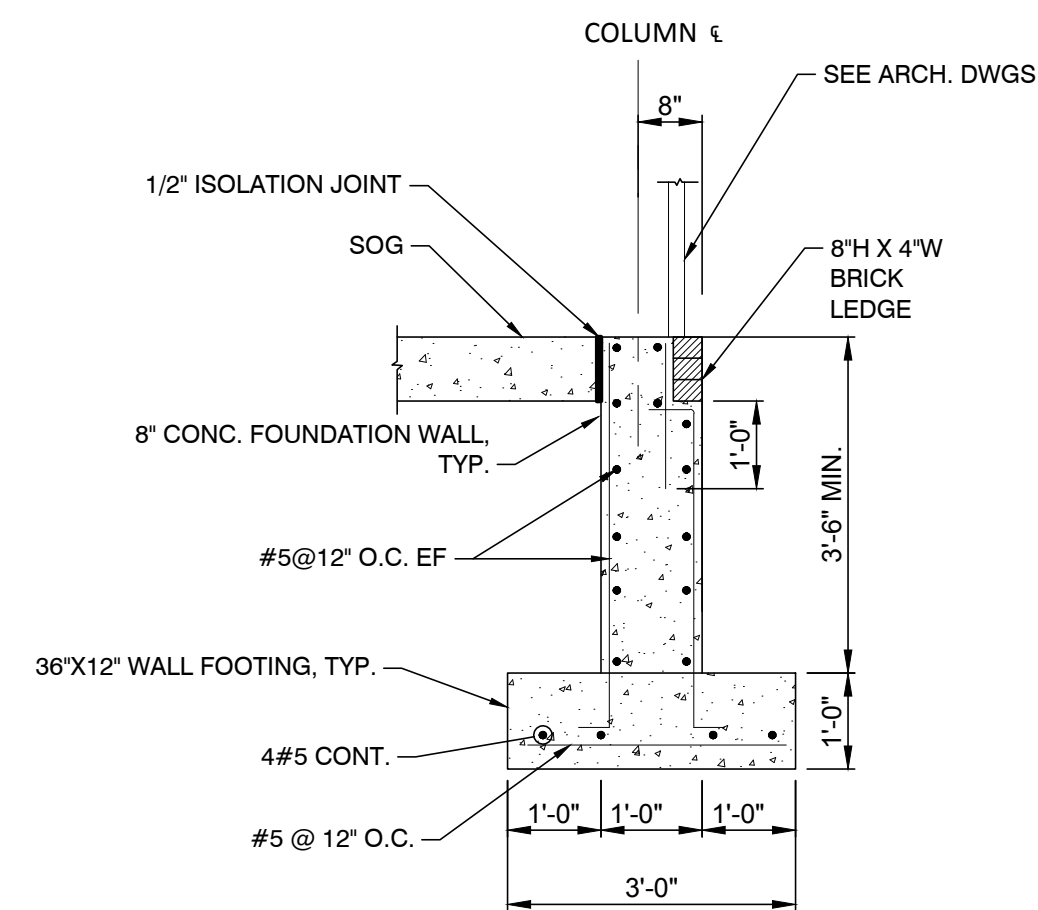
**8**  
S-06  
**TYP. EXT. MASONRY WALL FOUNDATION**  
SCALE: 1/2"=1'-0"



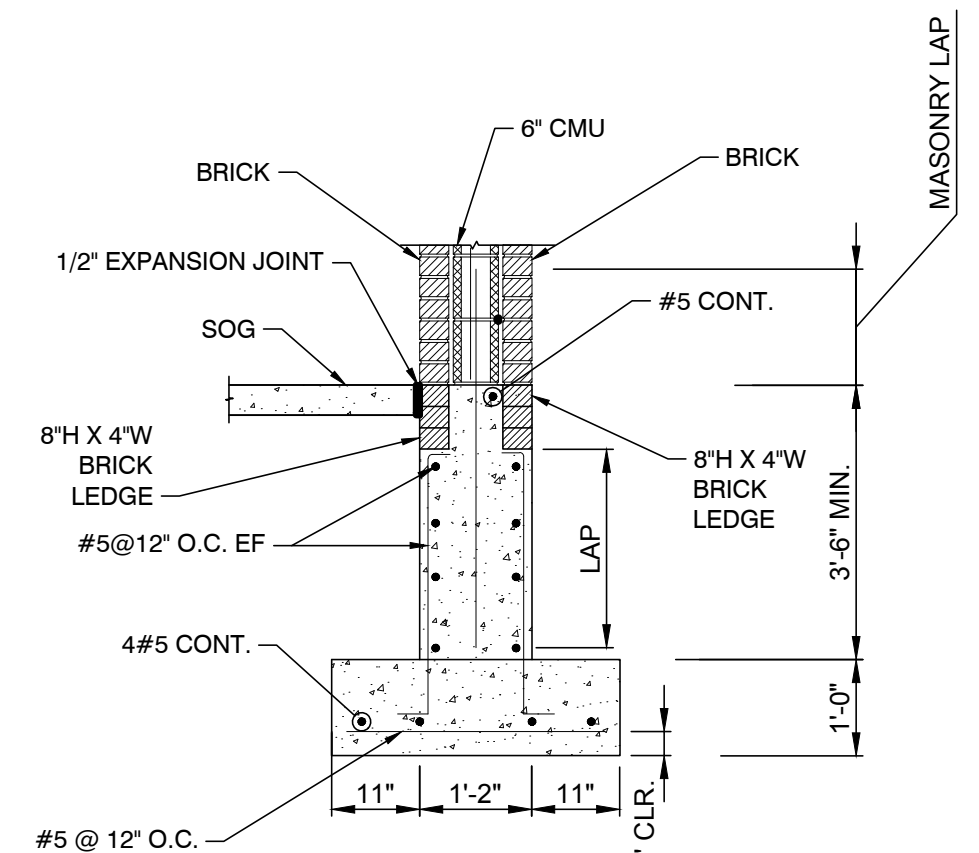
**9**  
S-06  
**TYP. W-COL BASE PLATE CONNECTION**  
SCALE: NTS



**10**  
S-06  
**TYP. EXT. 10\"/>**



**11**  
S-06  
**TYP. EXT. WINDOW FOUNDATION**  
SCALE: NTS



**12**  
S-06  
**TYP. EXT. SCREENWALL FOUNDATION**  
SCALE: 1/2"=1'-0"

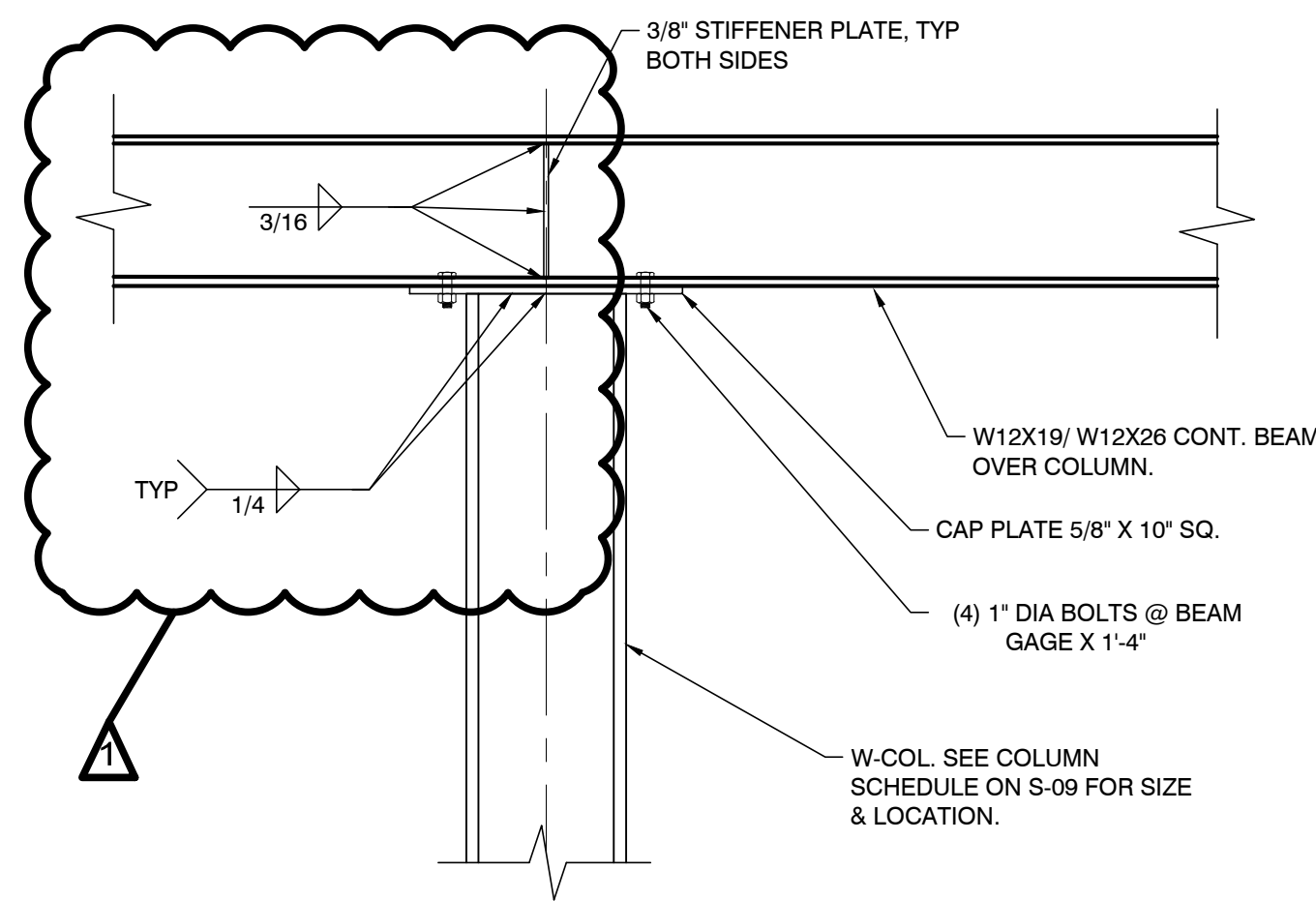


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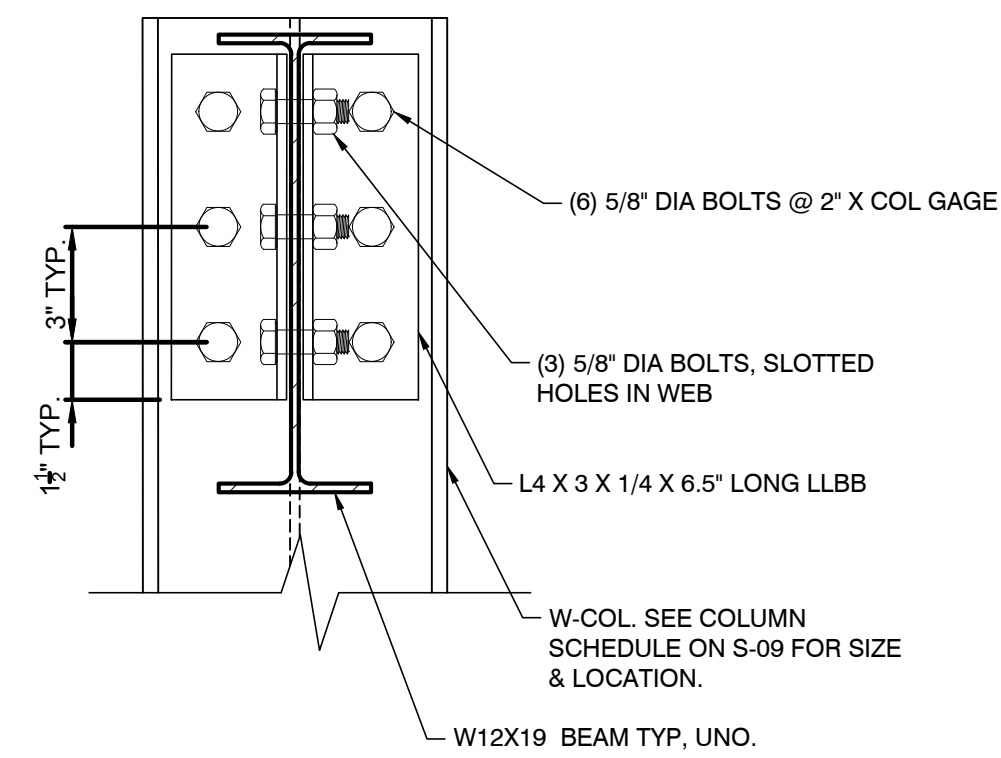
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**TYPICAL MASONRY DETAILS**

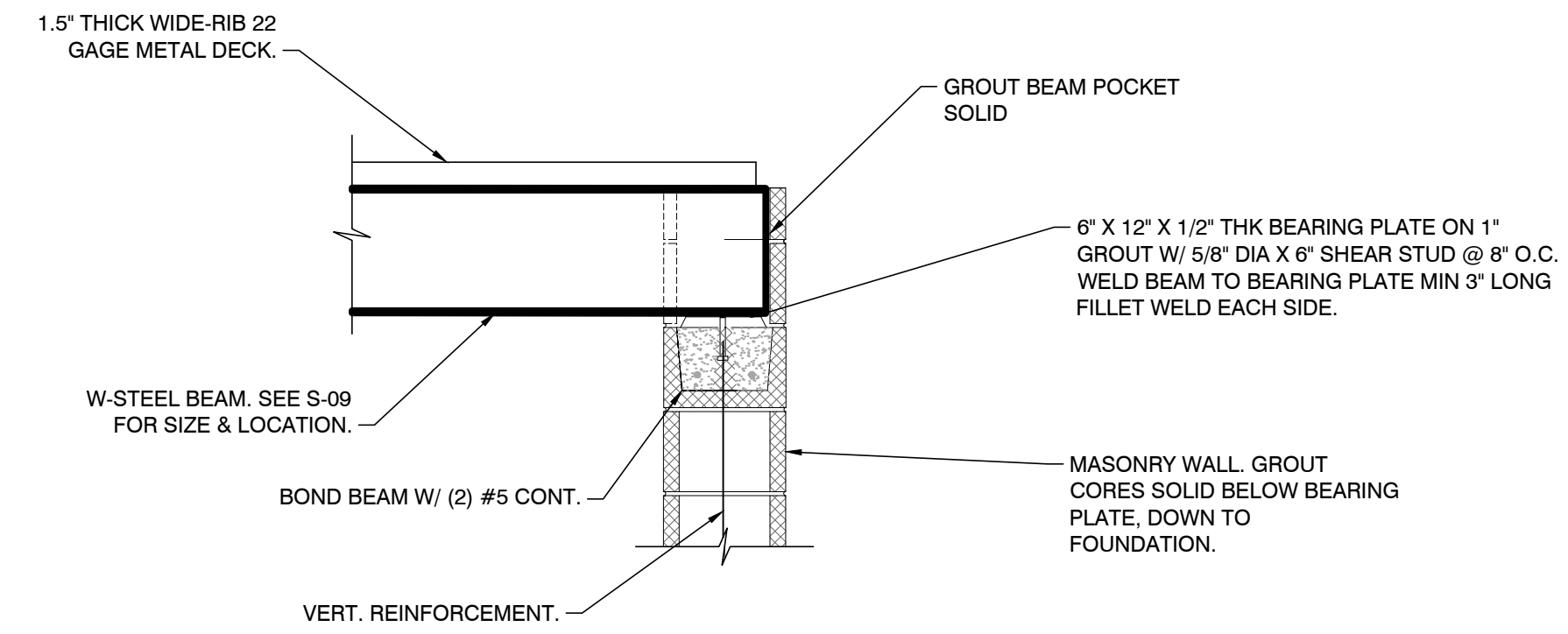
PROJECT NO.	18050002
DISCIPLINE	STRUCTURAL
SHEET NAME	S-06
SHEET	42
OF	55



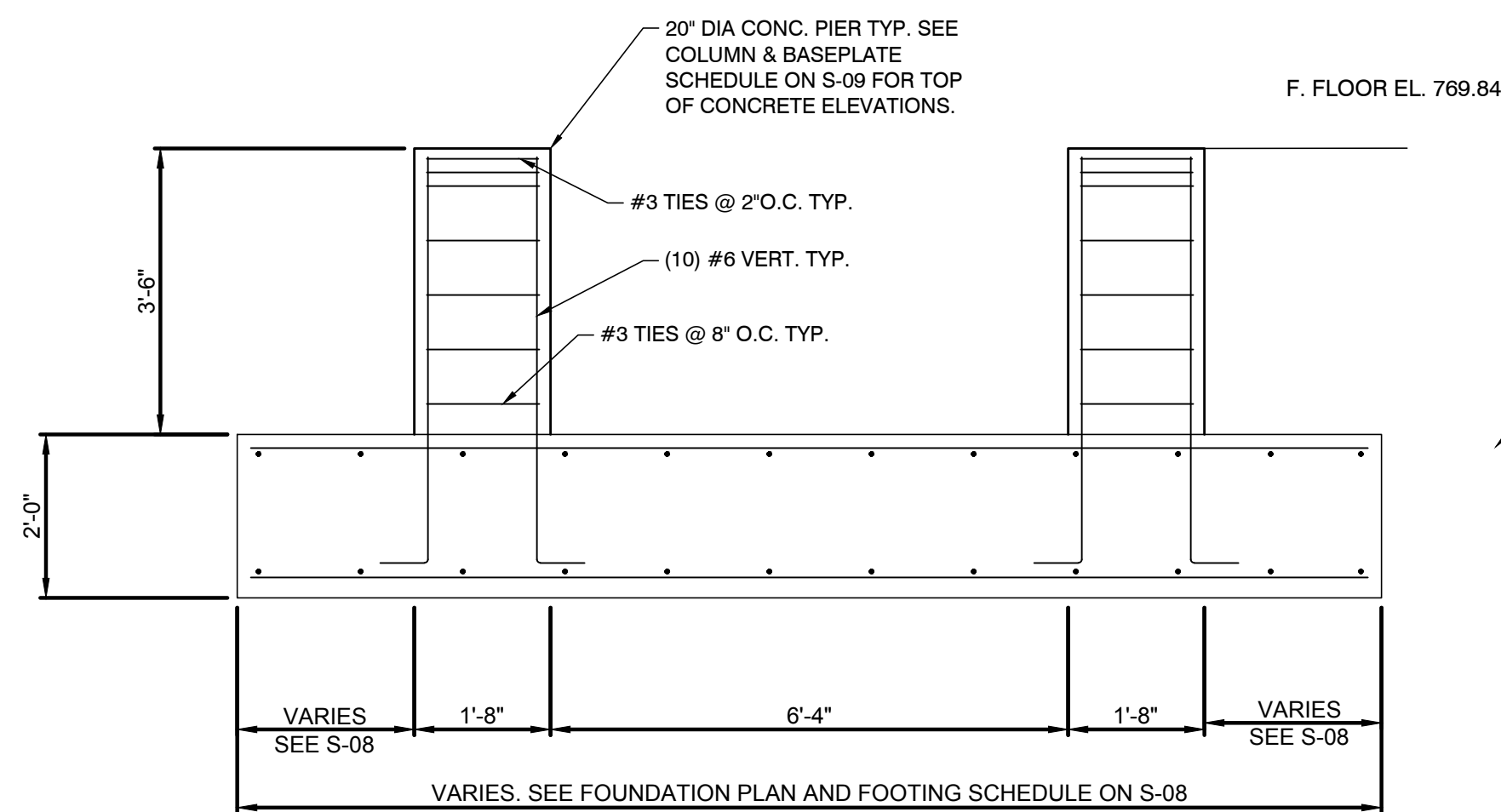
1  
S-07 TYP. CONT. BEAM TO W-COL CONNECTION  
SCALE: 1" = 15' 0"



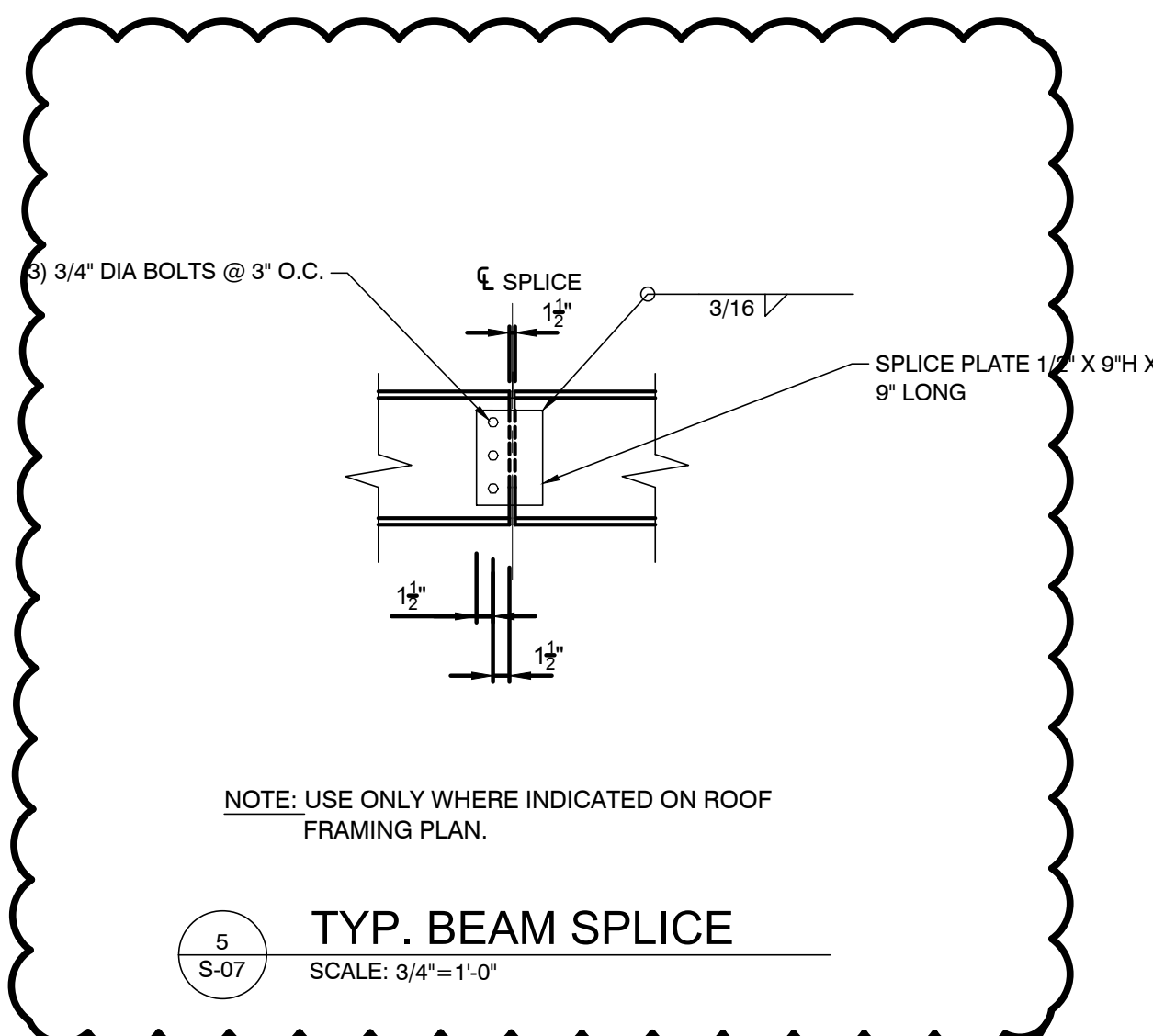
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S-07 TYP. W-12 BEAM WEB TO W-COL WEB CONNECTION  
SCALE: 1" = 5' 0"



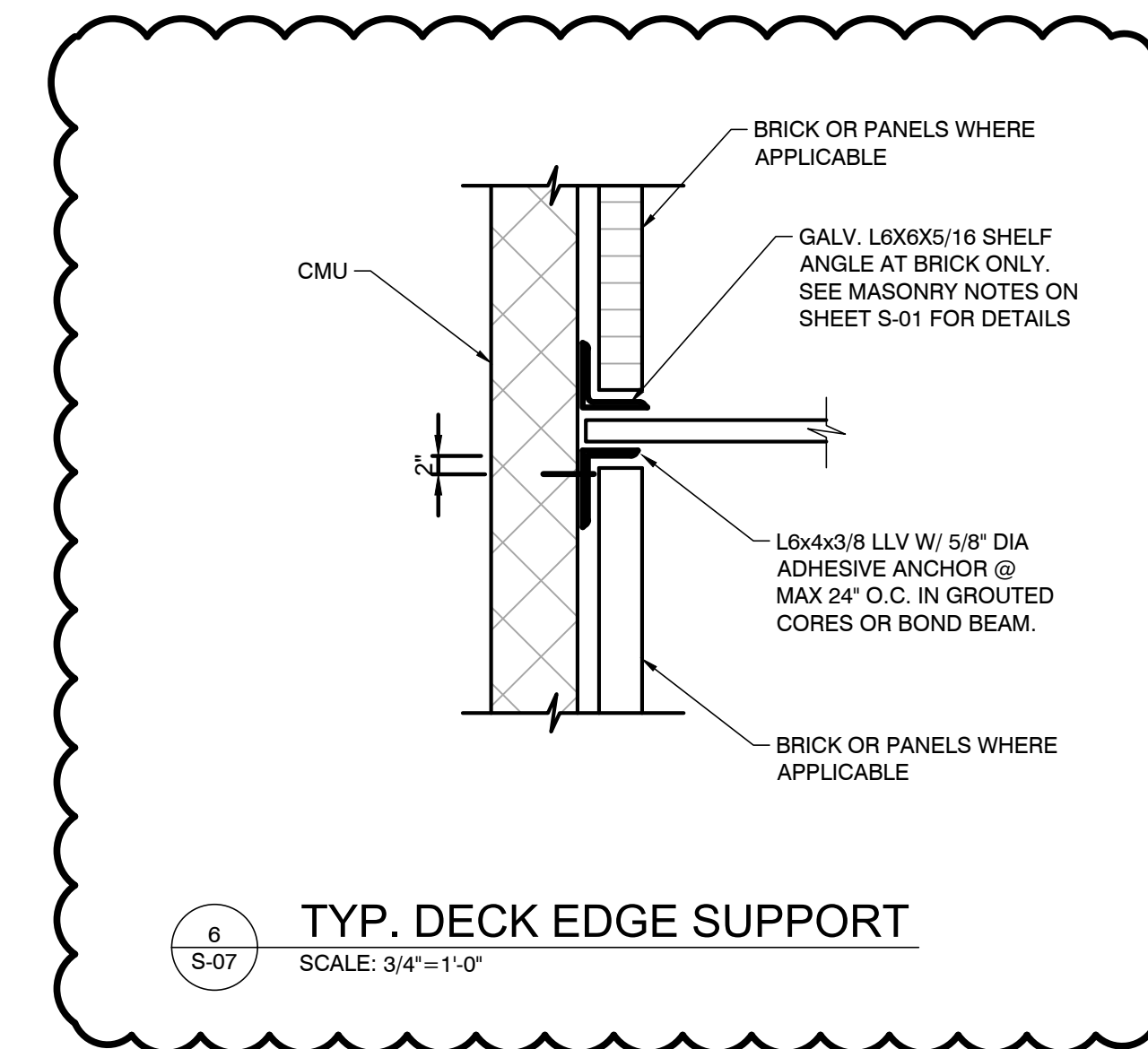
3  
S-07 TYP. W-BEAM TO MASONRY WALL CONNECTION  
SCALE: 3/4" = 1'-0"



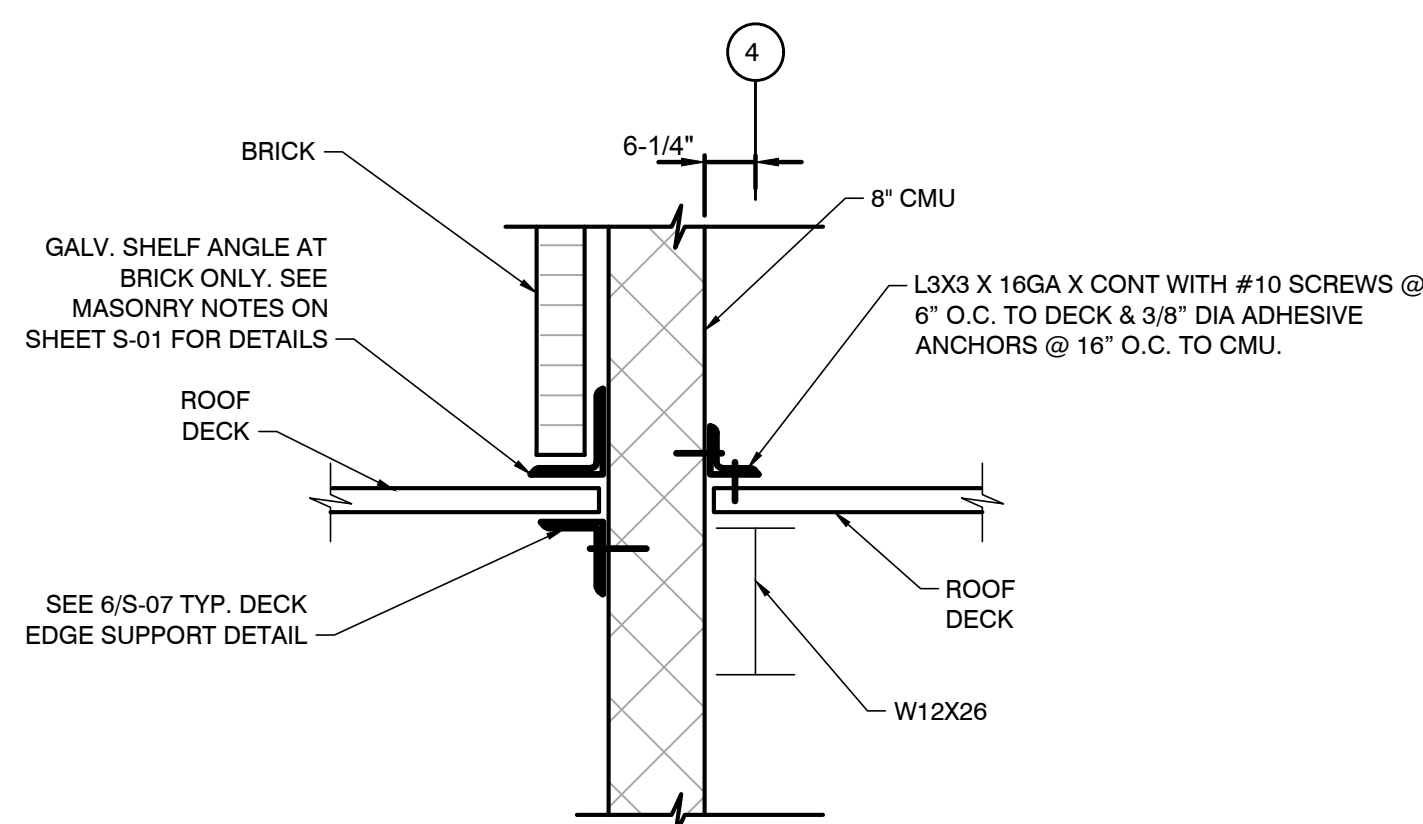
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S-07 TYP. 2-COLUMN FOOTING DETAIL  
SCALE: 1/2" = 1'-0"



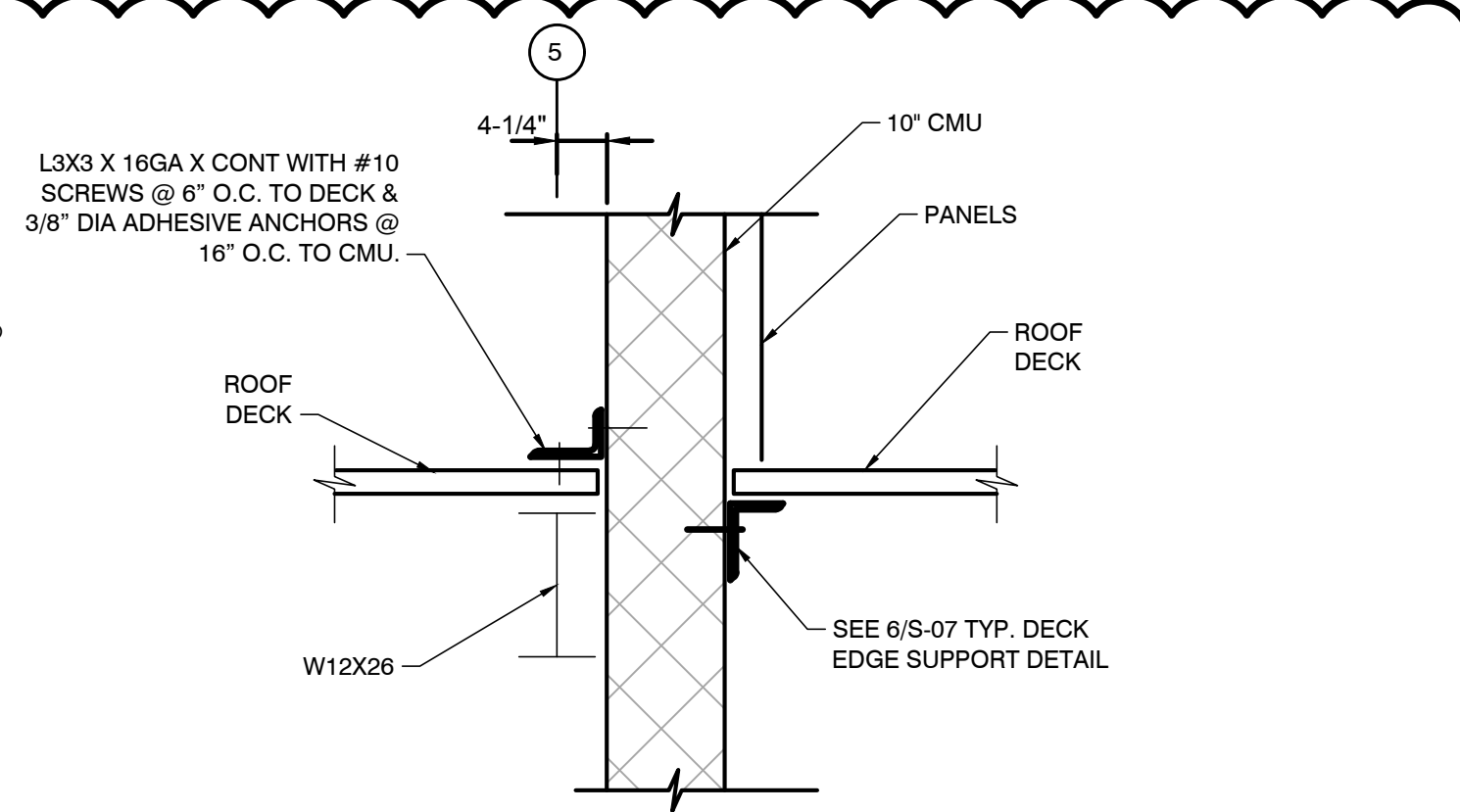
5  
S-07 TYP. BEAM SPLICE  
SCALE: 3/4" = 1'-0"



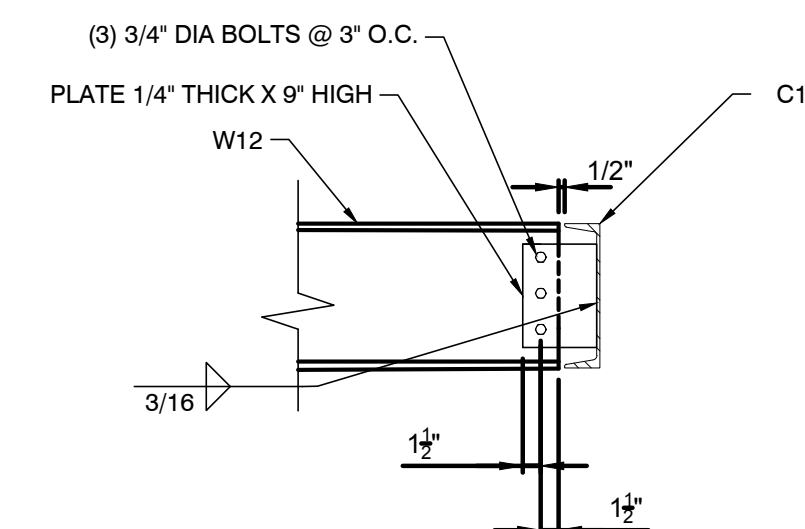
6  
S-07 TYP. DECK EDGE SUPPORT  
SCALE: 3/4" = 1'-0"



7  
S-07 TYP. DECK EDGE SUPPORT @ COL. LINE 4  
SCALE: 3/4" = 1'-0"



8  
S-07 TYP. DECK EDGE SUPPORT @ COL. LINE 5  
SCALE: 3/4" = 1'-0"



NOTE: USE ONLY WHERE INDICATED ON ROOF FRAMING PLAN.

9  
S-07 TYP. CHANNEL CONNECTION  
SCALE: 3/4" = 1'-0"



ISSUED FOR:	CD	NO	REVISION	DATE
8/5/19	AS SHOWN	1	DELTA 1	8/5/19
ISSUE DATE:	DESIGNED BY:	DRAWN BY:	CHECKED BY:	
SCALE:	AP	AP	PCP	

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TYPICAL STEEL DETAILS

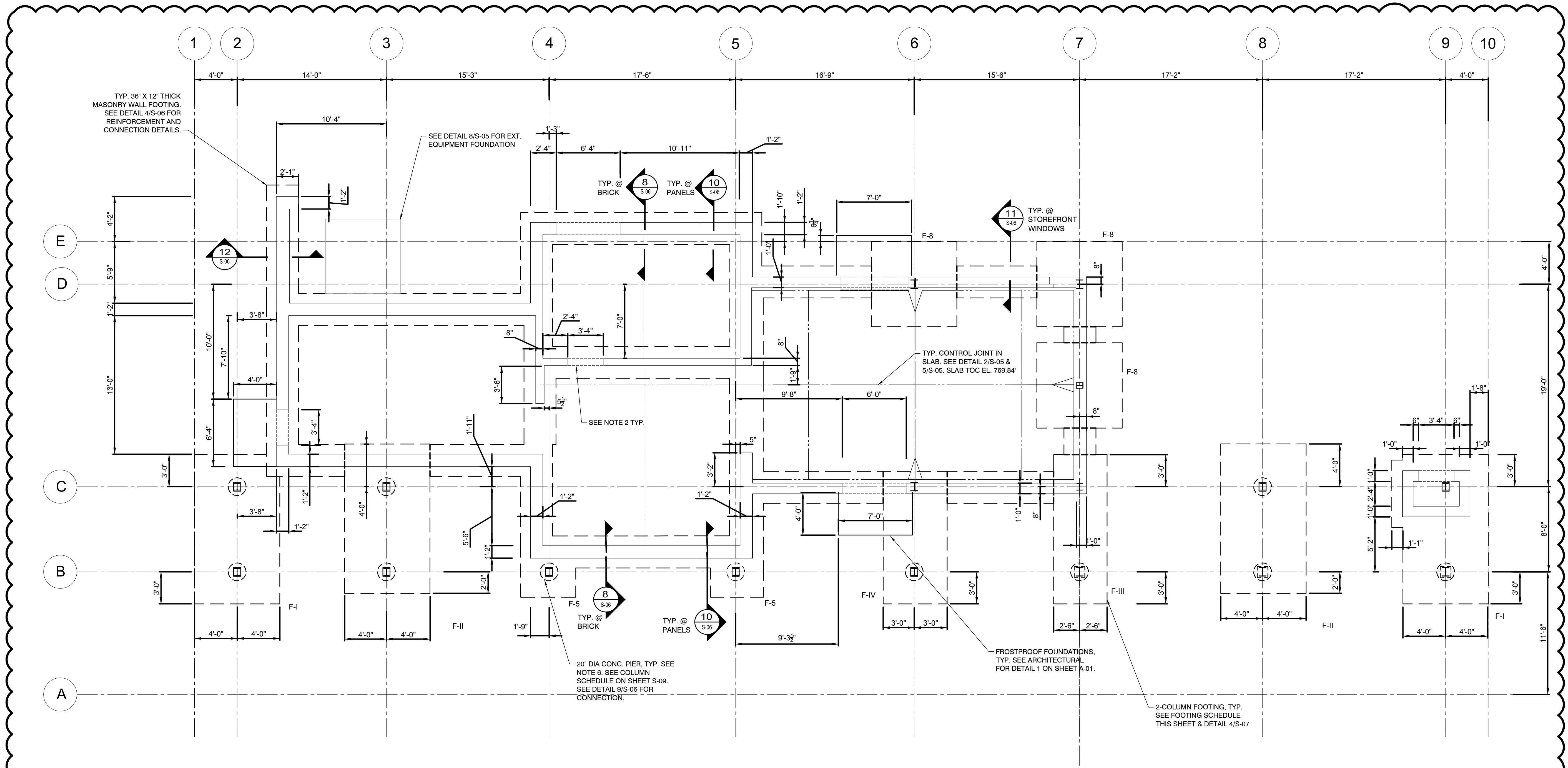
PROJECT NO.	18050002
DISCIPLINE	STRUCTURAL
SHEET NAME	S-07
SHEET	OF
43	55

DATE	REVISION	NO	CD	ISSUED FOR	ISSUE DATE	SCALE	DESIGNED BY	DRAWN BY	CHECKED BY
8/5/19	REBID	1	8/5/19	AS SHOWN	AP	AP	PCP		

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PROJECT NO.	18050002
DISCIPLINE	STRUCTURAL
SHEET NAME	S-08
SHEET	44
OF	55

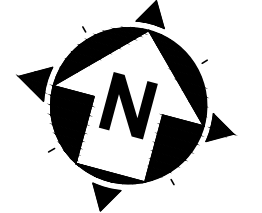
**FOUNDATION PLAN & SCHEDULE**



**NOTES:**

- SEE STRUCTURAL GENERAL NOTES AND SPECIFICATIONS FOR ADDITIONAL INFORMATION.
- AT MANDOORS, LOWER FOUNDATION WALL 8" FOR SLAB OVERPOUR
- THIS BUILDING HAS AN INTERIOR 5" THICK SLAB-ON-GRADE WITH WWR 6X6- W2.1XW2.1 ON TOP OF 4" COMPACTED DENSE GRADED AGGREGATE WITH FINES. SEE DETAIL 5/S-05.
- FINISHED FLOOR ELEVATION IS 769.84'
- SEE DETAIL 6/S-05 FOR TYP. TRENCH DRAINS.
- REINFORCE 20" DIA PIERS WITH (10) #5 VERTICAL BARS WITH STANDARD HOOKS AT THE BOTTOM LAYER OF FOOTING REBAR, WITH #3 TIES @ 8" O.C. UNO, AND WITH (3) #3 TIES @ 2" O.C. AT THE TOP OF PIER.
- SEE COLUMN SCHEDULE ON SHEET S-09 FOR SIZES AND LOCATION OF COLUMNS, BASEPLATES AND ANCHOR BOLTS.
- SEE ARCHITECTURAL PLANS & ELEVATIONS FOR LOCATIONS OF BRICK, PANELS & STOREFRONT WINDOWS.
- EVERYTHING ON THIS DRAWING SHALL BE INCLUDED IN THE SCOPE OF THE BUILDING BID PACKAGE, AND ALSO IN THE SCOPE OF THE SITE+BUILDING BID PACKAGE.

**FOUNDATION PLAN**  
 SCALE: 1" = 5'-0"



**FOOTING SCHEDULE**

MARK	SIZE	DEPTH FTG	BOT REINF.	TOP REINF.
F-5	5 SQ.FT X 1 FT THK	3'-6"	#5 @ 14" O.C. EW	#4 @ 14" O.C. EW
F-8	8 SQ.FT X 1.25 FT THK	3'-6"	#6 @ 14" O.C. EW	#4 @ 14" O.C. EW
F-I	14 FT X 8 FT X 2 FT THK	3'-6"	MAJOR- #7 @ 14" MINOR- #5 @ 14"	#5 @ 14" O.C. EW
F-II	14 FT X 8 FT X 2 FT THK	3'-6"	MAJOR- #7 @ 14" MINOR- #5 @ 14"	#5 @ 14" O.C. EW
F-III	14 FT X 5 FT X 1.5 FT THK	3'-6"	MAJOR- #7 @ 14" MINOR- #5 @ 14"	#4 @ 14" O.C. EW
F-IV	12 FT X 6 FT X 1.5 FT THK	3'-6"	MAJOR- #7 @ 14" MINOR- #5 @ 14"	#4 @ 14" O.C. EW

**FOOTING SCHEDULE NOTES:**

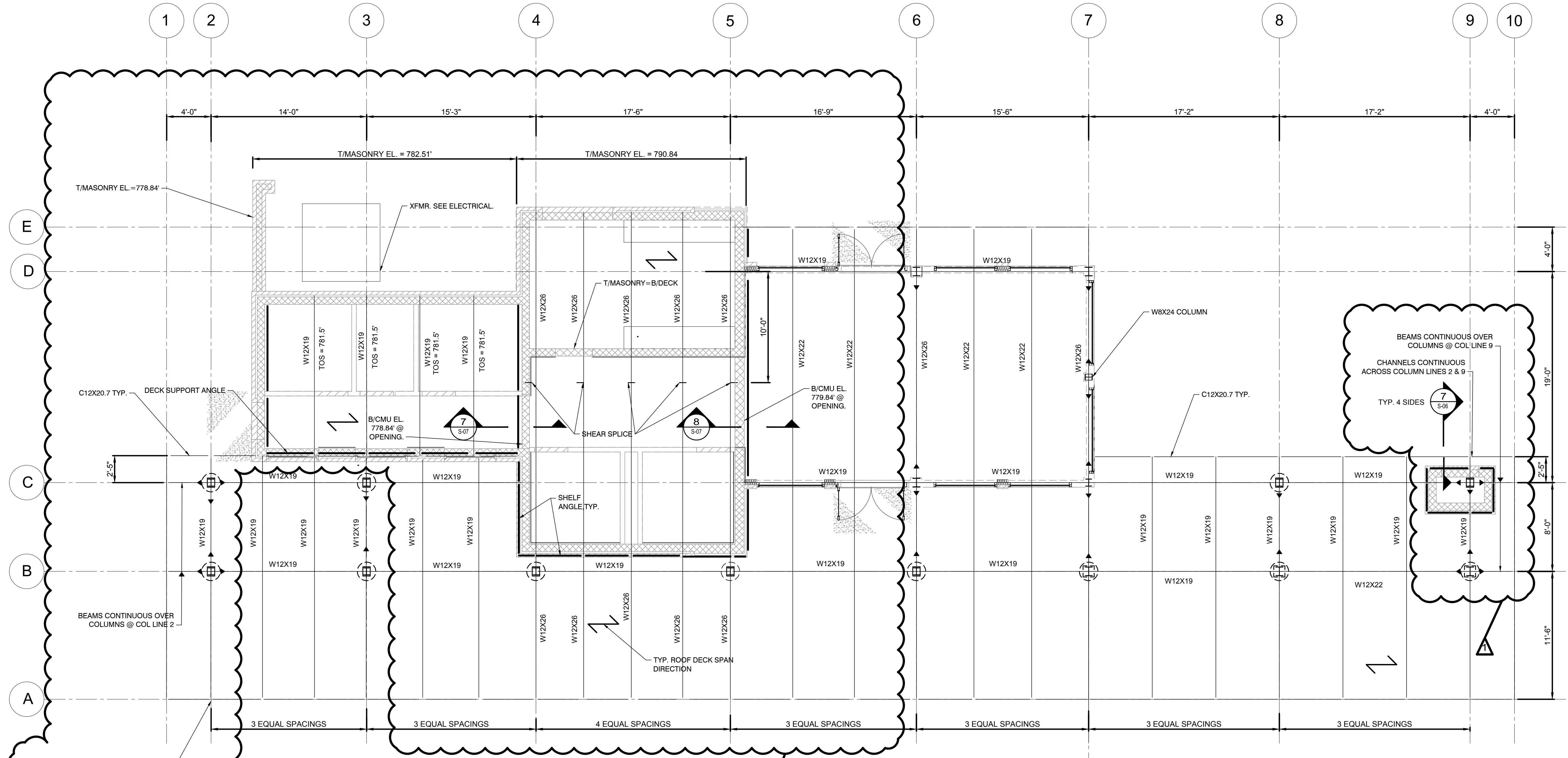
- DEPTH FTG = DEPTH OF FOOTING IS MEASURED FROM FINISH FLOOR ELEVATION TO TOP OF FOOTING.
- NORTH-SOUTH IS MAJOR DIRECTION (LONG SIDE OF FOOTING).
- EAST-WEST IS MINOR DIRECTION (SHORT SIDE OF FOOTING).

ISSUED FOR:	CD NO.	REVISION	DATE
ISSUE DATE:	1	REBID	8/5/19
SCALE:	AS SHOWN		
DESIGNED BY:	AP		
DRAWN BY:	AP		
CHECKED BY:	PCP		

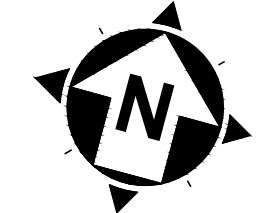
**LAKELAND TRANSFER CENTER**  
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PROJECT NO.  
**18050002**  
 DISCIPLINE  
**STRUCTURAL**  
 SHEET NAME  
**S-09**  
 SHEET OF  
**45 55**

**FRAMING PLAN & SCHEDULE**



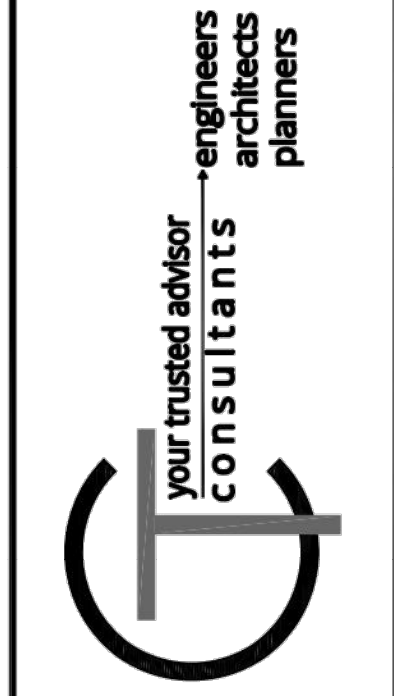
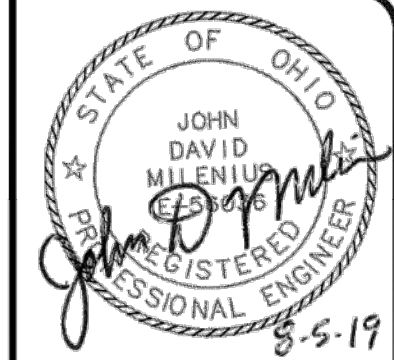
**ROOF FRAMING PLAN**  
 SCALE: 1" = 5'-0"



- NOTES:**
- TOP OF STEEL ELEVATION IS EL. 786.97' @ COLUMN LINE A UNO. TOP OF STEEL ELEVATION FOR EAST-WEST W12X19 STEEL BEAMS ALONG COLUMN LINES B, C & D IS DIRECTLY UNDER TOP W12 BEAMS. ALL OTHER TOP OF STEEL ELEVATIONS ARE REFERENCED TO 16'-8" AFF.
  - TOP OF STEEL ELEVATION IS EL. 786.73' @ COLUMN LINE B UNO.
  - TOP OF STEEL ELEVATION IS EL. 786.57' @ COLUMN LINE C UNO.
  - TOP OF STEEL ELEVATION IS EL. 786.17' @ COLUMN LINE D UNO.
  - TOP OF STEEL ELEVATION IS EL. 786.09' @ COLUMN LINE E UNO.
  - PROVIDE BOND BEAMS AT TOP OF WALL, AT BEAM BEARING, AND AT 8'-0" AFF.
  - SEE DETAIL 9/S-06 FOR CONNECTIONS BETWEEN COLUMN, BASEPLATE AND CONCRETE PIER.
  - ROOF DECK SHALL BE 1.5" THICK WIDE-RIB 22 GAGE (1.5B22) METAL DECK. SEE 7/S-06 FOR ROOF TO MASONRY WALL CONNECTION DETAIL. SEE ALSO SPECIFICATIONS FOR CONNECTIONS & FASTENING.
  - EVERYTHING ON THIS DRAWING SHALL BE INCLUDED IN THE SCOPE OF THE BUILDING BID PACKAGE, AND ALSO IN THE SCOPE OF THE SITE + BUILDING BID PACKAGE.

- COLUMN AND BASEPLATE SCHEDULE NOTES:**
- BOTTOM/ BP = ELEVATION OF BOTTOM OF BASEPLATE IN REFERENCE TO FINISH FLOOR ELEVATION CONSIDERING 1" NON-SHRINK GROUT
  - FINISH FLOOR ELEVATION IS 769.84'
  - WELD SIZE = FILLET WELD BETWEEN COLUMN AND BASEPLATE ALONG EACH SIDE OF COLUMN WEB. SEE TABLE FOR WELD SIZE

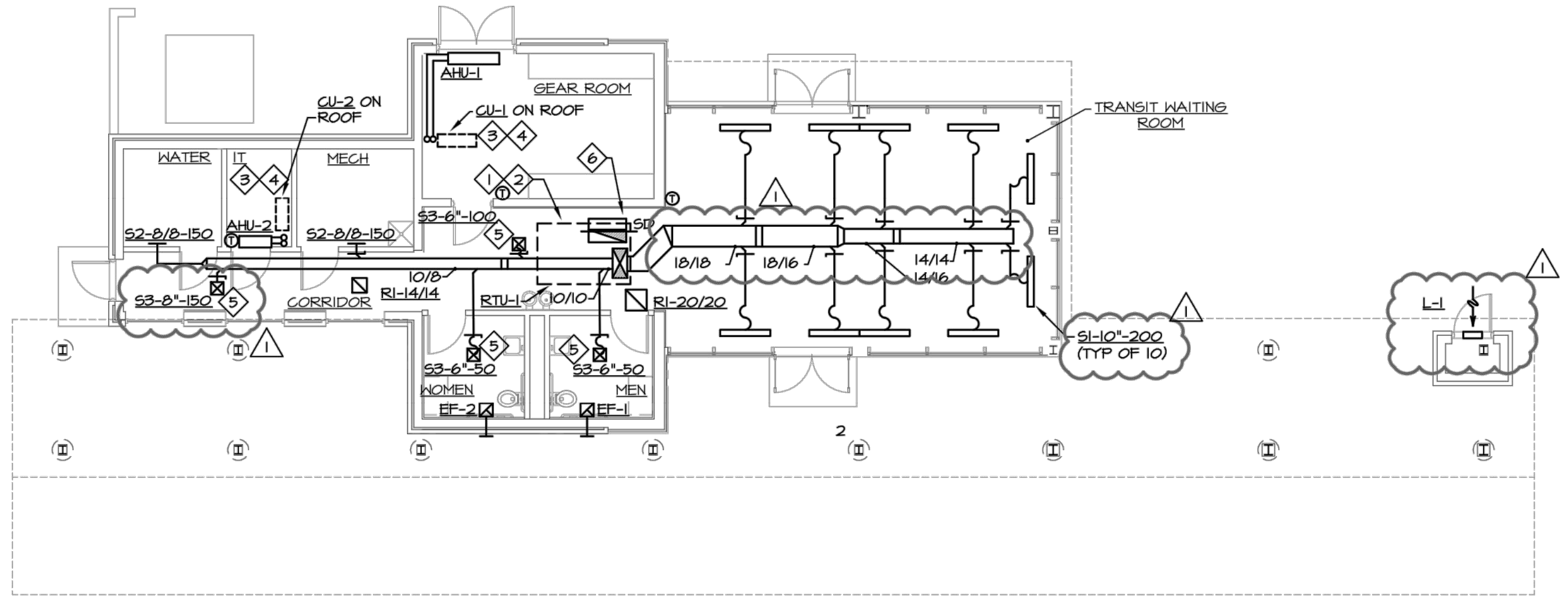
COLUMN & BASEPLATE SCHEDULE						
LOCATION	SIZE	TOP/ CONC. PIER (FT)	BASEPLATE	BOTTOM/ BP	ANCHOR BOLT	WELD SIZE
2-B	W8X24	773.51	10" X 8 1/2" X 3/4"	3'-9"	(4) 3/4" Ø W/ 12" EMBED.	3/16"
3-B	W8X24	773.51	10" X 8 1/2" X 3/4"	3'-9"	(4) 3/4" Ø W/ 12" EMBED.	3/16"
4-B	W8X24	773.51	10" X 8 1/2" X 3/4"	3'-9"	(4) 3/4" Ø W/ 12" EMBED.	3/16"
5-B	W8X24	773.51	10" X 8 1/2" X 3/4"	3'-9"	(4) 3/4" Ø W/ 12" EMBED.	3/16"
6-B	W8X24	773.51	10" X 8 1/2" X 3/4"	3'-9"	(4) 3/4" Ø W/ 12" EMBED.	3/16"
7-B	W10X33	773.51	12" X 10" X 3/4"	3'-9"	(4) 3/4" Ø W/ 12" EMBED.	3/16"
8-B	W10X33	773.51	12" X 10" X 3/4"	3'-9"	(4) 3/4" Ø W/ 12" EMBED.	3/16"
9-B	W10X33	773.51	12" X 10" X 3/4"	3'-9"	(4) 3/4" Ø W/ 12" EMBED.	3/16"
2-C	W8X24	773.51	10" X 8 1/2" X 3/4"	3'-9"	(4) 3/4" Ø W/ 12" EMBED.	3/16"
3-C	W8X24	773.51	10" X 8 1/2" X 3/4"	3'-9"	(4) 3/4" Ø W/ 12" EMBED.	3/16"
6-C	W10X33	768.84	12" X 10" X 3/4"	-0'-11"	(4) 3/4" Ø W/ 12" EMBED.	3/16"
7-C	W8X24	768.84	10" X 8 1/2" X 3/4"	-0'-11"	(4) 3/4" Ø W/ 12" EMBED.	3/16"
8-C	W8X24	773.51	10" X 8 1/2" X 3/4"	3'-9"	(4) 3/4" Ø W/ 12" EMBED.	3/16"
9-C	W8X24	770.34	10" X 8 1/2" X 3/4"	0'-7"	(4) 3/4" Ø W/ 12" EMBED.	3/16"
6-D	W10X45	768.84	12" X 10" X 3/4"	-0'-11"	(4) 3/4" Ø W/ 12" EMBED.	1/4"
7-D	W10X45	768.84	12" X 10" X 3/4"	-0'-11"	(4) 3/4" Ø W/ 12" EMBED.	1/4"



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**LAKELAND TRANSFER STATION**  
**LAKELAND COMMUNITY COLLEGE**  
 7700 CLOCKTOWER DR., KIRTLAND, OH 44094

PROJECT NO.	18050002
DISCIPLINE	MECHANICAL
SHEET NAME	M-1
SHEET	46
OF	55



**MECHANICAL PLAN**  
 SCALE: 1/8" = 1'-0"

**PLAN NOTES**

1. MAINTAIN HVAC UNIT 10'-0" FROM EDGE OF ROOF BOTH SIDES. MAINTAIN MANUFACTURER'S RECOMMENDED CLEARANCES ON ALL SIDES.
2. COORDINATE ROOFTOP UNIT LOCATION WITH ROOF DRAINS.
3. ROUTE 3/4 INCH PVC CONDENSATE DRAIN FROM EVAPORATOR DRAIN PAN WITH TRAP TO EXTERIOR SPLASH BLOCK ON GRADE.
4. ROUTE PIPES UP THRU ROOF WITH PATE PIPE CURB, SIZE PER MANUFACTURER'S RECOMMENDATION
5. BALANCE AIRFLOW TO DIFFUSER WITH DAMPER IN DIFFUSER.
6. RA DUCT FULL-SIZE LINED

ROOFTOP HEATING/COOLING UNIT SCHEDULE																					
MARK	MANUFACTURER	MODEL	NOMINAL TONS	FAN					COOLING				HEATING			ELECTRICAL			OPERATING WEIGHT (pounds)	REMARKS	
				TOTAL CFM	OA CFM	ESP (Inches)	RPM	MOTOR HP	TOTAL MBH	SENSIBLE MBH	EDB (degrees F)	EWB (degrees F)	AIR ON CONDENSER (degrees F)	KW	EAT (degrees F)	STAGES	VOLTAGE	MCA			MOCF
RTU-1	DAIKIN	MPSA07	7	2650	750	1.0	766	3	88.8	60.7	75.4	62.6	45	20	67	SCR	460V/3PH	27	30	444	1 THRU 13

- REMARKS:
1. NON-FUSED DISCONNECT SWITCH.
  2. 14 INCH HIGH ROOF CURB BY ROOFTOP UNIT MANUFACTURER. MOUNT CURB LEVEL ON SLOPED ROOF.
  3. 2 INCH MERV 8 DISPOSABLE FILTER.
  4. OVERSIZED SUPPLY FAN MOTOR.
  5. OPEN DRIP PROOF MOTOR.
  6. STAINLESS STEEL HEAT EXCHANGER.
  7. DUCT SMOKE DETECTOR (FIELD INSTALLED) FURNISHED BY E.C. MOUNTED BY M.C., WIRED FOR SHUT-DOWN BY E.C.
  8. FIVE YEAR COMPRESSOR WARRANTY.
  9. TEN YEAR HEAT EXCHANGER WARRANTY.
  10. POWDER COAT GALVANIZED STEEL EXTERIOR.
  11. SINGLE WALL CONSTRUCTION, INSULATED WALLS, PRE-PAINTED GALVANIZED STEEL EXTERIOR.
  12. ECONOMIZER WITH POWER EXHAUST ( FIELD INSTALLED)
  13. HIGH COOLING EFFICIENCY.
  14. ELECTRIC HEATER KIT - 20KW, 480V/3

SPLIT SYSTEM HEATING/COOLING UNIT SCHEDULE																
MARK	MANUFACTURER	MODEL	TOTAL CFM	MOTOR (WATTS)	INDOOR UNIT				OUTDOOR UNIT		MODEL	VOLTAGE	MCA	MOCF	AIR ON CONDENSER (degrees F)	REMARKS
					TOTAL MBH	SENSIBLE MBH	EAT DB (degrees F)	EAT WB (degrees F)	HEATING AT 47 F (MBH)	HEATING AT 17 F (MBH)						
AHU-1/CU-1	MITSUBISHI	PKA	500	56	24	22	75.4	62.7	26	18	FUZ	208/1	18	20	45	1-3
AHU-2/CU-2	MITSUBISHI	PKA	400	30	11.9	10	75.4	62.7	14	9.2	FUZ	208/1	11	20	45	1-3

- REMARKS:
1. DISCONNECT KIT
  2. MOUNT ON EQUIPMENT RAILS
  3. PROVIDE HEATING TO -20F

LOUVER SCHEDULE						
MARK	MANUFACTURER	MODEL	FREE AREA	SIZE (WIDTH X HEIGHT)	FINISH	REMARKS
L-1	RUSKIN	ELF3T5DX	1.40	18"X24"	BY ARCHITECT	1

- REMARKS:
1. LOUVER TO BE CENTER LOCATED, NEAR BOTTOM OF DOOR.

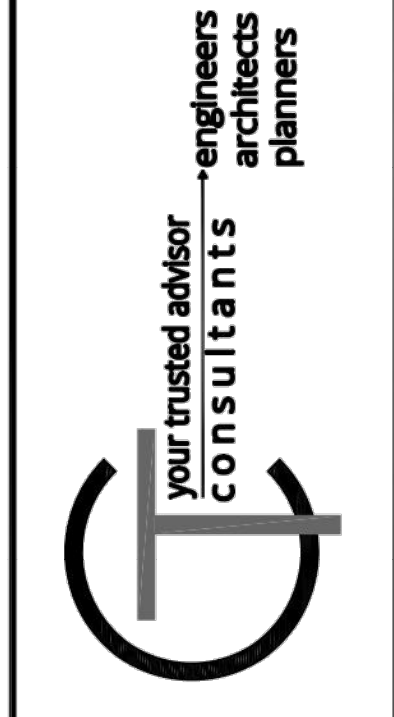
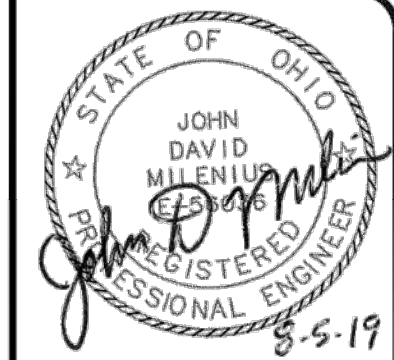
FAN SCHEDULE												
MARK	MANUFACTURER	MODEL	TYPE	CFM	ESP	MOTOR HP	MAXIMUM RPM	DRIVE	VOLTAGE	SONES	WEIGHT	REMARKS
EF-1	COOK	6C14B	CEILING FAN	100	0.25	44W	1075	D	120V/1PH	3	12 LBS.	1 THRU 5
EF-2	COOK	6C14B	CEILING FAN	100	0.25	44W	1075	D	120V/1PH	3	12 LBS.	1 THRU 5

- REMARKS:
1. INCLUDE SPEED CONTROL.
  2. DISCONNECT.
  3. VIBRATION ISOLATION.
  4. BACKDRAFT DAMPER.
  5. 8X8 BRICK VENT
  6. CONTROL THROUGH LIGHT SWITCH

REGISTERS, GRILLES, AND DIFFUSERS SCHEDULE									
MARK	MANUFACTURER	MODEL	DESCRIPTION	MATERIAL	FINISH	FRAME TYPE	NECK SIZE	MAX. NG	REMARKS
SI	TITUS	ML-34	LINEAR SLOT SUPPLY DIFFUSER	STEEL	CHOSEN BY ARCH.	DRYWALL	10"	30	1
S2	TITUS	300FS	SIDEWALL SUPPLY DIFFUSER	STEEL	CHOSEN BY ARCH.	SURFACE MOUNTED	8/8	30	-
S3	TITUS	OMNI	CEILING DIFFUSER	STEEL	CHOSEN BY ARCH.	SURFACE MOUNTED OR LAY-IN	REFER TO PLAN	30	2
RI	TITUS	50F	RETURN GRILLE	STEEL	CHOSEN BY ARCH.	DRYWALL	-	30	-

- NOTE:
1. SI SHALL BE 1 INCH 4 SLOT, 2-WAY THROW
  2. INCLUDE BALANCING DAMPER IN DIFFUSER



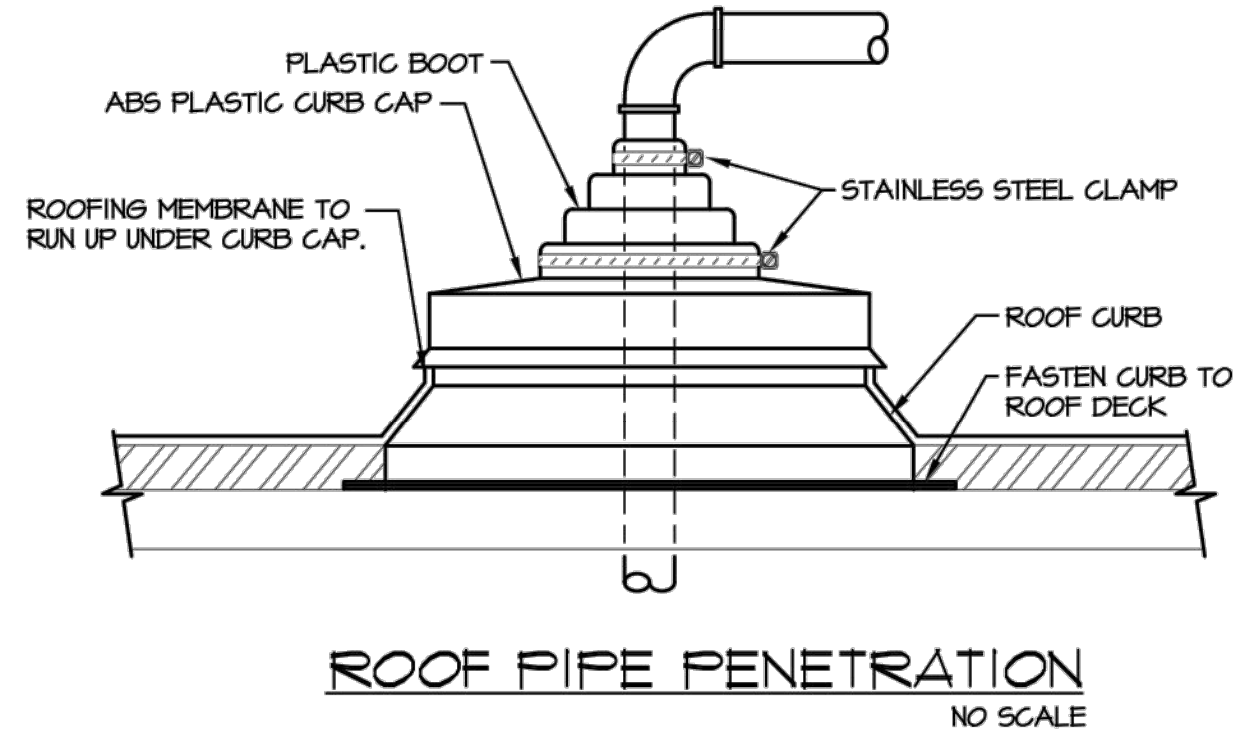


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					05/31/19	AS SHOWN	DJH	DJH	JDM

**LAKELAND TRANSFER STATION**  
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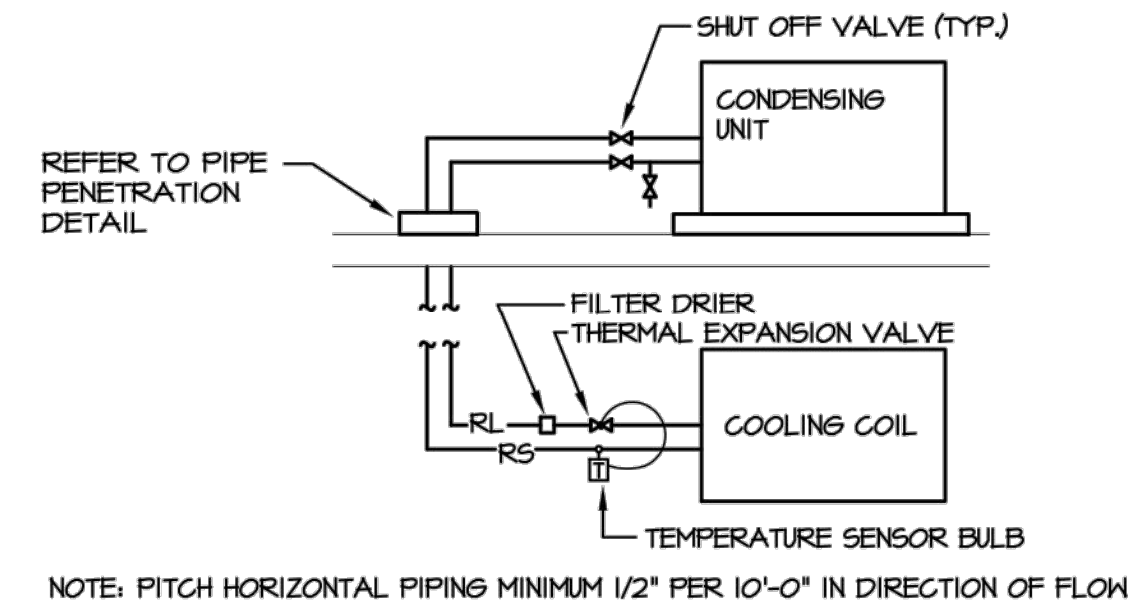
**MECHANICAL ABBREVIATIONS, DETAILS, AND NOTES**

PROJECT NO.	
<b>18050002</b>	
DISCIPLINE	
<b>MECHANICAL</b>	
SHEET NAME	
<b>M-2</b>	
SHEET	OF
<b>47</b>	<b>55</b>



**GENERAL NOTES**

- COORDINATE SCHEDULE OF WORK REQUIRED IN OCCUPIED AND OPERATING AREAS WITH OWNER PRIOR TO STARTING SUCH WORK.
- SCHEDULE UTILITY SERVICE SHUTDOWNS REQUIRED FOR NEW CONSTRUCTION WITH OWNER AND GENERAL TRADES PRIOR TO SHUTTING DOWN SYSTEMS. GIVE ONE WEEK ADVANCE NOTICE IN WRITING.
- CUT FLOOR, WALL, AND CEILING CONSTRUCTION FOR PENETRATIONS TO ACCOMMODATE NEW WORK. COORDINATE WITH GENERAL TRADES. PATCH CONSTRUCTION TO MATCH, OR TO SATISFACTION OF ARCHITECT AND OWNER.
- COORDINATE ROUTING OF NEW DUCTWORK WITH EXISTING BUILDING CONDITIONS AND WITH WORK OF OTHER TRADES. PROVIDE CHANGES IN LOCATION, DIRECTION, OFFSETS, AS MAY BE REQUIRED, WHETHER SPECIFICALLY INDICATED OR NOT, AND AT NO ADDITIONAL COST TO THE OWNER.
- COORDINATE AIR DISTRIBUTION DEVICE LOCATIONS WITH FINAL REFLECTED CEILING PLAN.
- UNLESS OTHERWISE NOTED, FLEXIBLE DUCTWORK IS SAME SIZE AS ROUND DUCTWORK TO WHICH IT IS CONNECTED. FLEXIBLE DUCTWORK TO BE NO MORE THAN 5'-0" AND TO BE INSTALLED TIGHT WITH NO SAGS OR KINKS.
- THE DUCTWORK SIZES INDICATED ARE INSIDE CLEAR DIMENSIONS.
- UNLESS OTHERWISE NOTED, DUCTWORK SERVING A SINGLE DIFFUSER, GRILLE OR REGISTER IS TO BE FULL NECK SIZE OF AIR DISTRIBUTION DEVICE FROM BRANCH TAKE-OFF TO DEVICE CONNECTION.



**REFRIGERANT-SPLIT SYSTEM PIPING**  
NO SCALE

**MECHANICAL SYMBOLS**

- TURNING VANES
- VOLUME DAMPER
- SUPPLY DUCT (DOWN - UP THROUGH LEVEL)
- RETURN OR EXHAUST DUCT (DOWN - UP THROUGH LEVEL)
- TRANSITION (RECTANGULAR DUCT TO ROUND DUCT)
- SUPPLY AIR DIRECTION ARROW
- FLEXIBLE DUCT CONNECTION
- RETURN/EXHAUST INTAKE DIRECTION ARROW
- TERMINAL MARK - NECK SIZE - AIRFLOW (CFM)
- RTU-I
- THERMOSTAT AND ASSOCIATED EQUIPMENT
- SHUTOFF VALVE
- FLOW DIRECTION
- PIPE ELBOW, DOWN
- PIPE ELBOW, UP
- PIPE TEE, DOWN
- PIPE TEE, UP
- REFRIGERANT LIQUID
- REFRIGERANT SUCTION

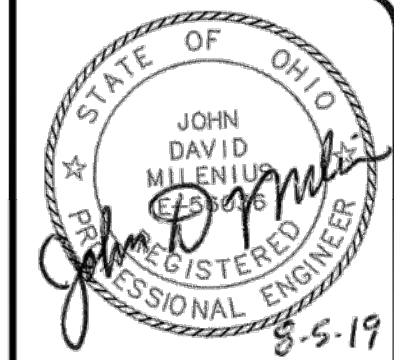
**MECHANICAL ABBREVIATIONS**

- AHU AIR HANDLING UNIT
- ASHRAE AMERICAN SOCIETY OF HEATING, REFRIGERATION AND AIR CONDITIONING ENGINEERS.
- B BOILER
- CFH CUBIC FEET PER HOUR
- CFM CUBIC FEET PER MINUTE
- CJ CONDENSER UNIT
- DEGREES, F DEGREES FAHRENHEIT
- DN DOWN
- DX DIRECT EXPANSION
- EA EXHAUST AIR
- EAT ENTERING AIR TEMPERATURE
- EDB ENTERING DRY BULB TEMPERATURE
- EER ENERGY EFFICIENCY RATIO
- EF EXHAUST FAN
- ESP EXTERNAL STATIC PRESSURE
- EWB ENTERING WET BULB TEMPERATURE
- EWT ENTERING WATER TEMPERATURE
- FLA FULL LOAD AMPS
- FFM FEET PER MINUTE
- HP HORSEPOWER
- HJ HUMIDIFIER
- HVAC HEATING, VENTILATING AND AIR CONDITIONING
- KW KILOWATT
- LAT LEAVING AIR TEMPERATURE
- LBS POUNDS
- LDB LEAVING DRY BULB TEMPERATURE
- LWB LEAVING WET BULB TEMPERATURE
- LWT LEAVING WATER TEMPERATURE
- MAX MAXIMUM
- MCA MINIMUM CIRCUIT AMPACITY
- MOPP MAXIMUM OVERCURRENT PROTECTION
- NC NOISE CRITERIA
- OA OUTSIDE AIR
- PG PROPYLENE GLYCOL
- RA RETURN AIR
- RH RELATIVE HUMIDITY
- RPM REVOLUTIONS PER MINUTE
- RTU ROOFTOP AIR CONDITIONING UNIT
- SA SUPPLY AIR
- SD SMOKE DETECTOR
- SMACNA SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION
- V VOLTS



33851 Curtis Blvd., 214  
 Eastlake, OH 44095  
 1.440.953.8760  
 1.440.953.1289  
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			05/31/19	AS SHOWN			DJH	DJH	JDM

**LAKELAND TRANSFER STATION**  
**LAKELAND COMMUNITY COLLEGE**  
 7700 CLOCKTOWER DR., KIRTLAND, OH 44094

**MECHANICAL SPECIFICATIONS**

PROJECT NO.		18050002
DISCIPLINE		MECHANICAL
SHEET NAME		M-3
SHEET	OF	
48	55	

33861 Curtis Blvd., 216  
 Ecstasy, OH 44095  
 1 440.953.8760  
 1 440.953.1289  
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1. GRILLES: SAME STYLE AS REGISTERS BUT WITHOUT DAMPER.  
 2. REGISTERS: ITEMS LABELED AS REGISTERS ARE TO BE FURNISHED WITH OPPOSED BLADE DAMPERS.
- D. FINISH: FURNISH GRILLES, REGISTERS AND DIFFUSERS WITH FACTORY APPLIED OFF-WHITE FINISH UNLESS NOTED OTHERWISE.
- 3.4 CENTRIFUGAL CEILING FANS
- A. CENTRIFUGAL FAN UNIT: DIRECT DRIVE WITH GALVANIZED STEEL HOUSING LINED WITH 1/2 INCH ACOUSTIC INSULATION; TOTALLY ENCLOSED FAN COOLED TYPE MOTOR WITH LUBRICATED SEALED BEARINGS, MOTOR MOUNTED ON RUBBER-IN-SHEAR ISOLATORS, OUTLET DUCT COLLAR, GRAVITY BACKDRAFT DAMPER IN DISCHARGE.
- B. DISCONNECT SWITCH.
- C. MANUFACTURER: LOREN COOK OR SIMILAR BY GREENHECK, ACME, OR TWIN CITY FAN.

- PART 4 EXECUTION**
- 4.1 INSTALLATION
- A. INSTALL BACKDRAFT DAMPERS ON DISCHARGE OF EXHAUST FANS.
- B. CONNECT DIFFUSERS OR TROFFER BOOTS TO LOW PRESSURE DUCTS WITH 5 FEET MAXIMUM LENGTH OF FLEXIBLE DUCT.
- C. INSTALL FLEXIBLE CONNECTIONS IMMEDIATELY ADJACENT TO EQUIPMENT IN DUCTS ASSOCIATED WITH FANS AND MOTORIZED EQUIPMENT.
- D. INSTALL DUCT ACCESS DOORS FOR INSPECTION AND CLEANING BEFORE AND AFTER FILTERS, COILS, FANS, AUTOMATIC DAMPERS, AND AT FIRE DAMPERS.
- E. CHECK LOCATION OF AIR OUTLETS AND INLETS AND MAKE NECESSARY ADJUSTMENTS IN POSITION TO CONFORM WITH ARCHITECTURAL FEATURES, SYMMETRY, AND LIGHTING ARRANGEMENT.
- F. PROVIDE BALANCING DAMPERS ON DUCT TAKE-OFF TO DIFFUSERS, AND GRILLES AND REGISTERS.
- G. PAINT DUCTWORK VISIBLE BEHIND AIR OUTLETS AND INLETS MATT BLACK.

- SECTION 23 70 00 - HEATING, VENTILATING, AND AIR CONDITIONING EQUIPMENT**
- PART 1 GENERAL**
- 1.1 SUBMITTALS
- A. PRODUCT DATA: REQUIRED
- B. SHOP DRAWINGS: REQUIRED
- C. PROJECT RECORD DOCUMENTS: REQUIRED
- PART 2 PRODUCTS**
- 2.1 PACKAGED ROOFTOP AIR CONDITIONING UNITS
- A. UNIT: SELF-CONTAINED, PACKAGED, FACTORY ASSEMBLED AND PREWIRED UNIT, CONSISTING OF CABINET AND FRAME, SUPPLY FAN, RETURN FAN, ELECTRIC HEATING ELEMENTS, CONTROLS, AIR FILTERS, REFRIGERANT COOLING COIL AND COMPRESSOR, CONDENSER COIL, AND CONDENSER FAN
- B. CABINET ACCESS PANELS: QUICK FASTENERS, LOCKING DOOR HANDLE TYPE WITH PIANO HINGES.
- C. AIR FILTERS: 2 INCH THICK GLASS FIBER DISPOSABLE MEDIA IN METAL FRAMES.
- D. ROOF MOUNTING CURB: 14 INCHES HIGH GALVANIZED STEEL CHANNEL FRAME WITH GASKETS AND NAILER STRIPS.
- E. ELECTRIC HEATING ELEMENTS: FINNED TUBE OR HELICAL NICKEL-CHROME RESISTANCE WIRE COIL WITH AUTOMATIC RESET THERMAL CUT-OUT, BUILT-IN CONTACTORS, CONTROL CIRCUIT TRANSFORMER AND FUSE, MANUAL RESET THERMAL CUT-OUT, AIRFLOW PROVING DEVICE, TOGGLE SWITCH, LOAD FUSES.
- F. EVAPORATOR [INDOOR] COIL: COPPER TUBE ALUMINUM FIN COIL ASSEMBLY WITH CAPILLARY TUBES OR THERMOSTATIC EXPANSION VALVES.
- G. COMPRESSOR: HERMETIC OR SEMI-HERMETIC COMPRESSOR, 3600 RPM, RESILIENTLY MOUNTED WITH POSITIVE LUBRICATION, CRANKCASE HEATER, HIGH AND LOW PRESSURE SAFETY CONTROLS, MOTOR OVERLOAD PROTECTION, SUCTION AND DISCHARGE SERVICE VALVES AND GAGE PORTS.
- H. CONDENSER OUTDOOR COIL: COPPER OR ALUMINUM TUBE ALUMINUM FIN COIL ASSEMBLY WITH COIL GUARD, DIRECT DRIVE PROPELLER FANS, FAN GUARD, PROVIDE OUTDOOR THERMOSTAT TO CYCLE FANS.
- I. DAMPERS: PROVIDE OUTSIDE, RETURN, AND RELIEF DAMPERS WITH DAMPER OPERATOR AND CONTROL, PACKAGE TO AUTOMATICALLY VARY OUTSIDE AIR QUANTITY. OUTSIDE AIR DAMPER FALLS TO CLOSED POSITION.
- J. THERMOSTAT: ELECTRIC SOLID STATE MICROCOMPUTER BASED ROOM THERMOSTAT
- 2.2 COMPUTER ROOM AIR CONDITIONING UNITS
- A. UNITS: PACKAGED, AIR COOLED, FACTORY ASSEMBLED, PRE-WIRED AND PRE-PIPED UNIT, CONSISTING OF CABINET, FANS, FILTERS, CONTROLS, ASSEMBLED FOR DOWN-FLOW AIR DELIVERY, IN DRAW-TROUGH OR BLOW-THROUGH CONFIGURATION.
- B. COMPRESSORS: TWO SEMI-HERMETIC WITH SUCTION GAS COOLED MOTORS, VIBRATION ISOLATORS, THERMAL OVERLOADS, OIL SIGHT GLASS, MANUAL RESET HIGH PRESSURE SWITCH, PUMP DOWN LOW PRESSURE SWITCH, SUCTION LINE STRAINER, REVERSIBLE OIL PUMPS, 1750 RPM, HERMETIC WITH RESILIENT SUSPENSION SYSTEM, OIL STRAINER, CRANKCASE SIGHT GLASS, INTERNAL MOTOR PROTECTION, LOW PRESSURE SWITCH, MANUAL RESET HIGH PRESSURE SWITCH.
- C. EVAPORATOR COILS [ALTERNATE ROW CIRCUITS, DIRECT EXPANSION COOLING COILS OF SEAMLESS COPPER TUBES EXPANDED INTO ALUMINUM FINNS.
- D. CONDENSERS
1. AIR COOLED, CORROSION RESISTANT CABINET, COPPER TUBE ALUMINUM FIN COILS ARRANGED FOR TWO CIRCUITS, MULTIPLE DIRECT DRIVE PROPELLER FANS WITH PERMANENTLY LUBRICATED BALL BEARING SINGLE PHASE MOTORS WITH INTERNAL OVERLOAD PROTECTION.
- E. FILTERS: PLEATED, LOFTED, NON-WOVEN, REINFORCED COTTON FABRIC; SUPPORTED AND BONDED TO WELDED WIRE GRID; ENCLOSED IN CARDBOARD FRAME; 2 INCH NOMINAL THICKNESS, RATED 25-30 PERCENT DUST SPOT EFFICIENCY.
- F. HEATING COILS: ENCLOSED FIN ELECTRICAL ELEMENTS ARRANGED FOR MINIMUM OF TWO [THREE] STAGES, PRIMARY AND SECONDARY THERMAL CUTOUPS, DIFFERENTIAL AIR PRESSURE SWITCH, BRANCH CIRCUIT OVER CURRENT PROTECTION.
- G. CONTROL CABINET: UL LISTED, WITH PIANO HINGED DOOR, GROUNDING LUG, COMBINATION MAGNETIC STARTERS WITH OVERLOAD RELAYS, CIRCUIT BREAKERS AND COVER INTERLOCK, AND FUSIBLE CONTROL CIRCUIT TRANSFORMER.
- H. ELECTRONIC CONTROL SYSTEM: SOLID STATE WITH START BUTTON, STOP BUTTON, TEMPORARY LOSS OF POWER INDICATOR, MANUAL RESET CIRCUIT BREAKERS, TEMPERATURE CONTROL HUMIDITY CONTROL, AND MONITOR PANEL.

- PART 3 EXECUTION**
- 3.1 INSTALLATION
- A. PROVIDE INITIAL START-UP AND SHUT-DOWN DURING FIRST YEAR OF OPERATION, INCLUDING ROUTINE SERVICING AND CHECK-OUT.
- B. MOUNT ROOF MOUNTED UNITS ON FACTORY BUILT ROOF CURB.
- C. PIPE DRAIN PAN CONDENSATE WITH "P" TRAP TO DISCHARGE TO SPLASH BLOCK.
- D. COVER, SPLICE BOX, COIL, CASING, FACTORY MOUNTED DISCONNECT SWITCH, AND CONTROLS; EXPOSED HELICAL COIL OF NICKEL-CHROME RESISTANCE WIRE WITH REFRACTORY CERAMIC SUPPORT BUSHINGS.
- E. CONTROL: REMOTELY MOUNTED SPACE THERMOSTAT.

- PART 3 EXECUTION**
- 3.1 INSTALLATION
- A. AFTER COMPLETION OF INSTALLATION, TEST AND ADJUST CONTROL EQUIPMENT.
- B. PROVIDE GUARDS ON THERMOSTATS IN ENTRANCES AND OTHER PUBLIC AREAS.
- C. PROVIDE CONDUIT AND ELECTRICAL WIRING IN ACCORDANCE WITH APPROPRIATE REQUIREMENTS OF DIVISION 26.
- 3.2 SEQUENCES OF OPERATION
- A. ROOFTOP PACKAGED UNIT (RTU-1)
1. WARM-UP CYCLE:
- A. THE SUPPLY FAN IS, THROUGH THE DDC CONTROLLER AT THE OPTIMAL TIME AND RUN CONTINUOUSLY.
- B. THE OUTSIDE AIR AND RELIEF AIR DAMPERS ARE CLOSED. THE RETURN AIR DAMPER IS FULLY OPEN. THE ELECTRIC HEATING SYSTEM IS OPERATIONAL AND HEATING BASED ON ZONE HEATING REQUIREMENTS.
- C. THE UNIT REFRIGERATION SYSTEM IS LOCKED OUT WHEN OCCUPIED SPACE TEMPERATURE IS REACHED, UNIT IS INDEXED TO THE OCCUPIED CYCLE.
- D. COOL DOWN CYCLE:
- A. THE SUPPLY FAN IS, THROUGH THE DDC CONTROLLER, STARTED AT THE OPTIMAL TIME AND RUN CONTINUOUSLY.
- B. THE OUTSIDE AIR AND RELIEF AIR DAMPERS ARE CLOSED. THE RETURN AIR DAMPER IS FULLY OPEN. THE UNIT REFRIGERATION SYSTEM IS ALLOWED TO OPERATE.
- C. THE ELECTRIC HEATING SYSTEM IS OFF.
- D. WHEN OCCUPIED SPACE TEMPERATURE IS REACHED, UNIT IS INDEXED TO THE OCCUPIED CYCLE.
3. OCCUPIED CYCLE:
- A. THE SUPPLY AIR FAN RUN CONTINUOUSLY.
- B. THE OUTSIDE AIR DAMPER IS OPEN TO ITS MINIMUM POSITION.
- C. PROOF OF STATUS (FLOW) FOR EACH FAN IS PROVIDED BY MENS OF AN AIR DIFFERENTIAL PRESSURE SWITCH. PROVIDE AN ALARM MESSAGE, THROUGH THE DDC CONTROLLER, WHEN A MALFUNCTION OCCURS.
- D. HEATING - UPON A CALL FOR HEATING FROM SPACE TEMPERATURE, AN ELECTRONIC SPACE TEMPERATURE, THROUGH THE DDC CONTROLLER, THE FIRST STAGE OF ELECTRIC HEAT SHALL BE ENERGIZED. THE UNIT REFRIGERATING SYSTEM IS LOCKED OUT. ON A FURTHER DECREASE IN SPACE TEMPERATURE, THE SECOND STAGE OF HEATING SHALL BE INITIATED.
- E. COOLING - UPON A CALL FOR COOLING FROM SPACE TEMPERATURE, AN ELECTRONIC SPACE TEMPERATURE SENSOR, THROUGH THE DDC CONTROLLER, THE FIRST STAGE OF COOLING SHALL BE ENERGIZED. THE UNIT ELECTRIC HEATING SYSTEM IS LOCKED OUT. ON A FURTHER INCREASE IN SPACE TEMPERATURE, THE SECOND STAGE OF COOLING SHALL BE INITIATED.
4. UNOCCUPIED HEATING CYCLE:
- A. THE SUPPLY FAN IS, THROUGH THE DDC CONTROLLER, STOPPED AT THE OPTIMAL TIME AND CYCLE TO MAINTAIN REDUCED SPACE TEMPERATURE.
- B. THE FIRST STAGE OF THE ELECTRIC HEAT IS INITIATED. THE SECOND STAGE OF HEATING SHALL AUTOMATICALLY BE INITIATED IF THE ROOMS TEMPERATURE SETTING IS NOT MET.
- C. THE UNIT REFRIGERATION SYSTEM IS OFF.
- D. OUTSIDE AIR AND RELIEF AIR DAMPERS ARE FULLY CLOSED. RETURN AIR DAMPERS ARE FULLY OPEN.
5. UNOCCUPIED COOLING CYCLE:
- A. THE SUPPLY FAN, THROUGH THE DDC CONTROLLER, IS STOPPED AT THE OPTIMAL TIME AND CYCLE TO MAINTAIN REDUCED SPACE TEMPERATURE.
- B. THE HEATING SYSTEM IS OFF.
- C. THE UNIT REFRIGERATION SYSTEM IS ALLOWED TO OPERATE UPON FAN CYCLING.
- D. OUTSIDE AIR AND RELIEF AIR DAMPERS ARE FULLY CLOSED. RETURN AIR DAMPERS ARE FULLY OPEN.
6. OVERRIDE:
- A. PROVIDE A MANUAL OVERRIDE SWITCH TO PERMIT RESTORATION OF THE OCCUPIED CYCLE FOR AA THREE-HOUR TIME PERIOD (ADJUSTABLE) IN ORDER FOR THE OVERRIDE SWITCH TO BE RESET FOR A SUCCESSIVE TIME PERIOD, IT MUST FIRST TIME OUT FROM THE PREVIOUS PERIOD.
- B. SPLIT SYSTEM HEATING AND COOLING (AHU-1/CU-1, AHU-2/CU-2)
1. UNIT SHALL BE PROVIDED WITH 24V PROGRAMMABLE WALL THERMOSTAT, TO ENERGIZE THE FAN AND COMPRESSOR UPON A CALL FOR COOLING.

- PART 1 SECTION 23 09 00 - INSTRUMENTATION AND CONTROL FOR HVAC**
- PART 2 GENERAL**
- 2.1 SUBMITTALS
- A. PRODUCT DATA: REQUIRED.
- B. SHOP DRAWINGS: NOT REQUIRED.

- PART 3 PRODUCTS**
- 3.1 DUCTWORK
- A. MATERIALS
1. STEEL DUCTS: GALVANIZED STEEL SHEET, LOCK-FORMING QUALITY.
2. FLEXIBLE DUCTS: FABRIC SUPPORTED BY HELICALLY WOUND SPRING STEEL WIRE OR FLAT STEEL BANDS.
- B. METAL DUCTWORK
- FABRICATE AND SUPPORT IN ACCORDANCE WITH SMACNA HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE.
2. CONSTRUCT T'S, BENDS, AND ELBOWS WITH RADIUS OF 1-1/2 TIMES WIDTH OF DUCT ON CENTER LINE OR PROVIDE TURNING VANES.
3. INCREASE DUCT SIZES GRADUALLY, NOT EXCEEDING 30 DEGREES DIVERGENCE AND 45 DEGREES CONVERGENCE.
- C. MANUFACTURED DUCTWORK AND FITTINGS
1. MANUFACTURE IN ACCORDANCE WITH SMACNA HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE. FURNISH DUCT MATERIAL, GAGES, BEADING, AND SEALING FOR OPERATING PRESSURES AS INDICATED ON DRAWINGS.

- 3.2 DUCT ACCESSORIES
- A. VOLUME CONTROL DAMPERS
1. FABRICATION: SMACNA HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE.
2. SINGLE BLADE DAMPERS: FABRICATE FOR DUCT SIZES TO 12 X 30 INCH.
3. QUADRANTS: PROVIDE LOCKING, INDICATING REGULATORS ON DAMPERS.
- B. BACKDRAFT DAMPERS: FABRICATE MULTI-BLADE, PARALLEL ACTION GRAVITY BALANCED BACKDRAFT DAMPERS OF GALVANIZED STEEL OR EXTRUDED ALUMINUM, WITH CENTER PIVOTED BLADES LINKED TOGETHER.
- C. FLEXIBLE DUCT CONNECTIONS: UL LISTED FIRE RETARDANT NEOPRENE COATED WOVEN GLASS FIBER FABRIC TO NFPA 90A, APPROXIMATELY 3 INCHES WIDE, CRIMPED INTO METAL EDGING STRIP.
- D. DUCT ACCESS DOORS
1. FABRICATE IN ACCORDANCE WITH SMACNA HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE.
2. ACCESS DOORS WITH SHEET METAL SCREW FASTENERS ARE NOT ACCEPTABLE.
- 3.3 GRILLES, REGISTERS, AND DIFFUSERS
- A. MANUFACTURER: PRICE OR SIMILAR BY ANEMOSTAT, TITUS, OR NAILOR-HART.
- B. GENERAL: GRILLE, REGISTER, AND DIFFUSER INFORMATION MARK, MODEL NUMBER, TYPE, SIZE, FINISH, AND ACCESSORY ITEMS ARE INDICATED IN SCHEDULE. LOCATIONS, TYPE, OPEN, AND DIRECTIONS OF THROW (WHERE APPLICABLE) ARE INDICATED ON DRAWINGS.
- C. DEFINITIONS: TERMS USED FOR GRILLES, REGISTERS, AND DIFFUSERS ARE AS FOLLOWS:

- SECTION 23 05 00 - COMMON WORK RESULTS FOR HVAC**
- PART 1 GENERAL**
- 1.1 SUBMITTALS
- A. PRODUCT DATA: SUBMIT VALVES AND GAGES.
- PART 2 PRODUCTS**
- 2.1 PIPING
- A. REFRIGERANT PIPING: COPPER TUBING, TYPE ACR HARD DRAWN, SILVER BRAZED.
- 2.2 PIPE HANGERS
- A. ALL SERVICES: CLEVIS TYPE CONFORMING TO MSS TYPE 1.
- B. UPPER ATTACHMENTS: COMPATIBLE WITH TYPE OF STRUCTURE BEING USED. [AT STEEL JOIST LOCATIONS ATTACH HANGERS TO TOP CHORD OF JOISTS.]
- PART 3 EXECUTION**
- 3.1 INSTALLATION
- A. PROVIDE DIELECTRIC CONNECTIONS WHEREVER JOINTING DISSIMILAR METALS.
- B. REAM PIPE AND TUBE ENDS: REMOVE BURRS, BEVEL PLAIN END FERROUS PIPE.
- C. INSTALL GLOBE VALVES FOR SHUT-OFF APPLICATIONS IN REFRIGERANT PIPING SYSTEMS.

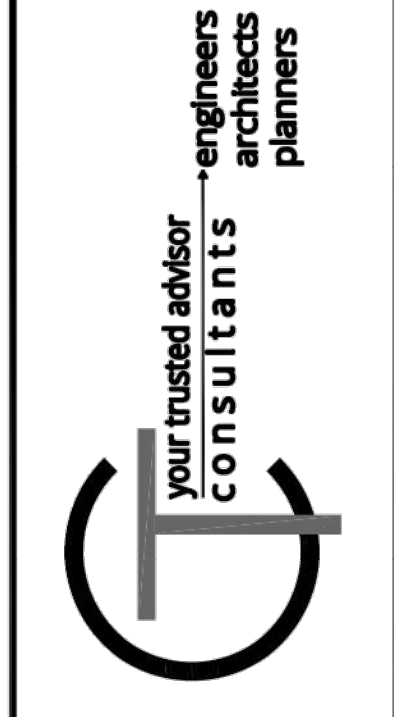
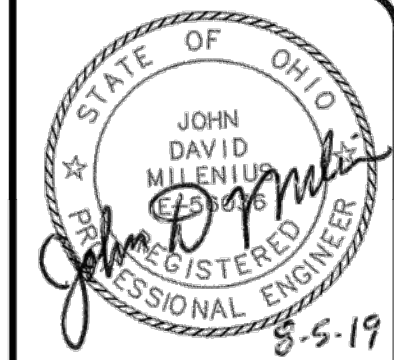
- SECTION 23 05 93 - TESTING, ADJUSTING, AND BALANCING FOR HVAC**
- PART 1 GENERAL**
- 1.1 SUBMITTALS
- A. FINAL REPORT: REQUIRED.
- 1.2 REPORT FORMS: AABC NATIONAL STANDARDS FOR TOTAL SYSTEM BALANCE FORMS.
- 1.3 AIR HANDLING SYSTEMS: ADJUST FANS AND AIR DISTRIBUTION OUTLETS AND INLETS AIR FLOWS TO WITHIN PLUS OR MINUS 5 PERCENT OF DESIGN.

- SECTION 23 07 00 - HVAC INSULATION**
- PART 1 GENERAL**
- 1.1 SUBMITTALS
- A. PRODUCT DATA: REQUIRED
- B. SAMPLES: NOT REQUIRED
- PART 2 PRODUCTS**
- 2.1 PIPE INSULATION
- A. GLASS FIBER: RIGID MOLDED, NONCOMBUSTIBLE WITH VAPOR BARRIER JACKET.
- B. CELLULAR FOAM: FLEXIBLE, CELLULAR ELASTOMERIC, MOLDED OR SHEET.
- C. PIPE INSULATION RATED FOR 0-1000 DEGREES F, WITH A "K" FACTOR OF 0.27 AT A MEAN TEMPERATURE OF 150 DEGREES F. REFER TO SCHEDULE FOR INSULATION REQUIRED THICKNESS.
- D. INSULATION SHALL NOT CONTAIN ANY PBDE (POLYBROMINATED DIPHENYL ETHERS) FLAME RETARDANTS.
- E. JACKETS
1. PVC PLASTIC: ONE PIECE MOLDED TYPE FITTING COVERS AND SHEET MATERIAL, OFF-WHITE COLOR.
2. ALUMINUM JACKET: SHEET, [SMOOTH] [EMBOSSED] FINISH.
- 2.2 DUCTWORK INSULATION
- A. FLEXIBLE GLASS FIBER: FLEXIBLE, NONCOMBUSTIBLE BLANKET WITH VAPOR BARRIER JACKET.
- B. RIGID GLASS FIBER: RIGID, NONCOMBUSTIBLE BLANKET WITH VAPOR BARRIER JACKET.
- C. JACKETS
1. ALUMINUM JACKET: SHEET, SMOOTH, OR EMBOSSED FINISH.
- D. DUCT INSULATION "R" VALUES SHALL BE EQUAL TO OR GREATER THAN REQUIRED BY CODE.
- E. INSULATION SHALL NOT CONTAIN ANY PBDE (POLYBROMINATED DIPHENYL ETHERS) FLAME RETARDANTS.

- SECTION 23 09 00 - INSTRUMENTATION AND CONTROL FOR HVAC**
- PART 1 GENERAL**
- 1.1 SYSTEM DESCRIPTION
- A. DESIGN REQUIREMENTS: ELECTRIC SYSTEM INCLUDING CONTROL DEVICES, ACTUATORS, AND ELECTRIC ACCESSORIES.
- 1.2 SUBMITTALS
- A. PRODUCT DATA: REQUIRED.
- B. SHOP DRAWINGS: REQUIRED.
- PART 2 PRODUCTS**
- 2.1 CONTROL COMPONENTS
- A. FURNISH MATERIALS AND EQUIPMENT OF STANDARD COMPONENTS, MANUFACTURED FOR USE IN CONTROL SYSTEMS AND NOT CUSTOM DESIGNED ESPECIALLY FOR THIS PROJECT. FURNISH COMPONENTS TESTED AND PROVEN IN ACTUAL USE.
- B. FURNISH PRODUCTS TO ACCOMPLISH SEQUENCES OF OPERATION DESCRIBED IN PART 3.
- C. CONTROL WIRING: WIRING IN ACCORDANCE WITH REQUIREMENTS OF DIVISION 26. MINIMUM WIRE SIZE TO BE 14 GAUGE.

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08/05/19				LAKELAND TRANSFER STATION	05/31/19	AS SHOWN	JJK	JJK	JDM
				LAKELAND COMMUNITY COLLEGE					
				7700 CLOCKTOWER DR., KIRTLAND, OH 44094					

**LAKELAND TRANSFER STATION**  
**LAKELAND COMMUNITY COLLEGE**  
 7700 CLOCKTOWER DR., KIRTLAND, OH 44094

**PLUMBING PLAN, LEGEND, ABBREVI., NOTES, & STACK DIAGRAM**

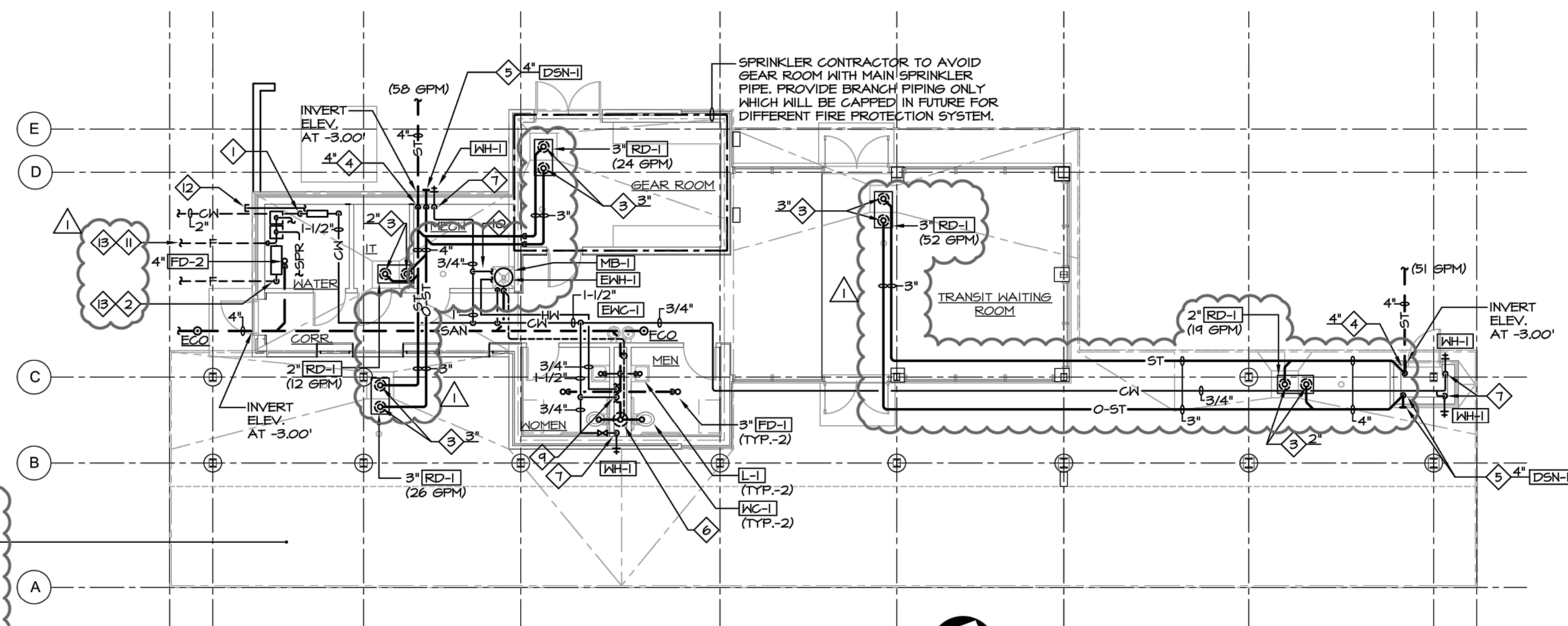
PROJECT NO.	18050002
DISCIPLINE	PLUMBING
SHEET NAME	P-1
SHEET	49
OF	55

**PLUMBING SYMBOLS**

	REDUCED PRESSURE BACKFLOW PREVENTER
	CLEANOUT
	CHECK VALVE
	CLEANOUT (HORIZONTAL)
	PIPE ELBOW, DOWN
	PIPE ELBOW, UP
	PIPE TEE, DOWN
	PIPE TEE, UP
	TEMPERATURE AND PRESSURE RELIEF VALVE
	VACUUM RELIEF VALVE
	SHUTOFF VALVE
	THERMOMETER
	UNION
	STORM SEWER PIPING (BELOW FLOOR OR GRADE)
	SANITARY WASTE PIPING (BELOW FLOOR OR GRADE)
	VENT PIPING
	DOMESTIC COLD WATER (BELOW FLOOR OR GRADE)
	DOMESTIC COLD WATER
	DOMESTIC HOT WATER
	STORM SEWER PIPING (ABOVE FLOOR)
	OVERFLOW STORM SEWER PIPING (ABOVE FLOOR)
	FIRELINE WATER (BELOW FLOOR OR GRADE)
	SPRINKLER PIPING

**PLUMBING ABBREVIATIONS**

AFF	ABOVE FINISHED FLOOR
AHJ	AUTHORITY HAVING JURISDICTION
ARCH	ARCHITECT
BFF	BELOW FINISHED FLOOR
CW	DOMESTIC COLD WATER
deg. F	DEGREES FAHRENHEIT
DIA	DIAMETER
E.C.	ELECTRICAL CONTRACTOR
ECO	EXTERIOR CLEANOUT
FD	FLOOR DRAIN
G.C.	GENERAL CONTRACTOR
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
HW	DOMESTIC HOT WATER
In. W.C.	INCHES WATER COLUMN
KW	KILOWATT
L	LAVATORY
M.C.	MECHANICAL CONTRACTOR
MIN	MINIMUM
MR	MOP RECEPTOR
MV	MIXING VALVE
OPC	OHIO PLUMBING CODE
P	PUMP
P.C.	PLUMBING CONTRACTOR
PH	PHASE
PVC	POLYVINYL CHLORIDE PLASTIC
QTY	QUANTITY
TYP.	TYPICAL
V	VOLTS
VTR	VENT THROUGH ROOF
WC	WATER CLOSET
WH	WALL HYDRANT



**PLUMBING PLAN**  
 SCALE: 1/8" = 1'-0"

**F.P. SPRINKLER NOTE:**  
 PROVIDE DRY-PIPE SPRINKLER COVERAGE FROM DRY-PIPE SPRINKLER SYSTEM WITHIN CANOPY. SPRINKLER PIPING WILL BE THROUGH THE STRUCTURE. CONTRACTOR TO SUBMIT LAYOUT TO ARCHITECT FOR REVIEW PRIOR TO SUBMITTING FOR PERMIT.

**GENERAL PLUMBING NOTES**

- A. COORDINATE SCHEDULE OF WORK REQUIRED IN OCCUPIED AREAS WITH OWNER PRIOR TO STARTING SUCH WORK.
- B. SCHEDULE UTILITY SERVICE SHUTDOWNS REQUIRED FOR NEW CONSTRUCTION WITH OWNER AND GENERAL TRADES PRIOR TO SHUTTING DOWN SYSTEMS. GIVE ONE WEEK ADVANCE NOTICE IN WRITING.
- C. COORDINATE ROUTING OF NEW PIPING WITH NEW BUILDING CONDITIONS AND WITH WORK OF OTHER TRADES. PROVIDE CHANGES IN LOCATION, DIRECTION, OFFSETS, AS MAY BE REQUIRED, WHETHER SPECIFICALLY INDICATED OR NOT, AND AT NO ADDITIONAL COST TO THE OWNER.
- D. ALL FIXTURES SHALL BE PROVIDED WITH SHUT-OFF BALL VALVES ON SUPPLY LINES.
- E. ALL PUBLIC HAND WASHING SINKS AND LAVATORIES SHALL BE SUPPLIED WITH TEMPERED WATER WITH AN APPROVED WATER TEMPERATURE LIMITING DEVICE THAT CONFORMS TO ASSE 1010.
- F. ALL WORK TO BE COMPLETED IN ACCORDANCE WITH THE LOCAL BUILDING CODE AND AUTHORITY HAVING JURISDICTION.
- G. PLUMBING WORK SHALL BE COMPLETED BY AN INDIVIDUAL OR BUSINESS THAT IS LICENSED BY THE STATE CONSTRUCTION INDUSTRY LICENSING BOARD.
- H. ALL FLOOR DRAINS TO MEET SECTIONS 1002.4 OF THE OPC.

**FIRE PROTECTION NOTE**

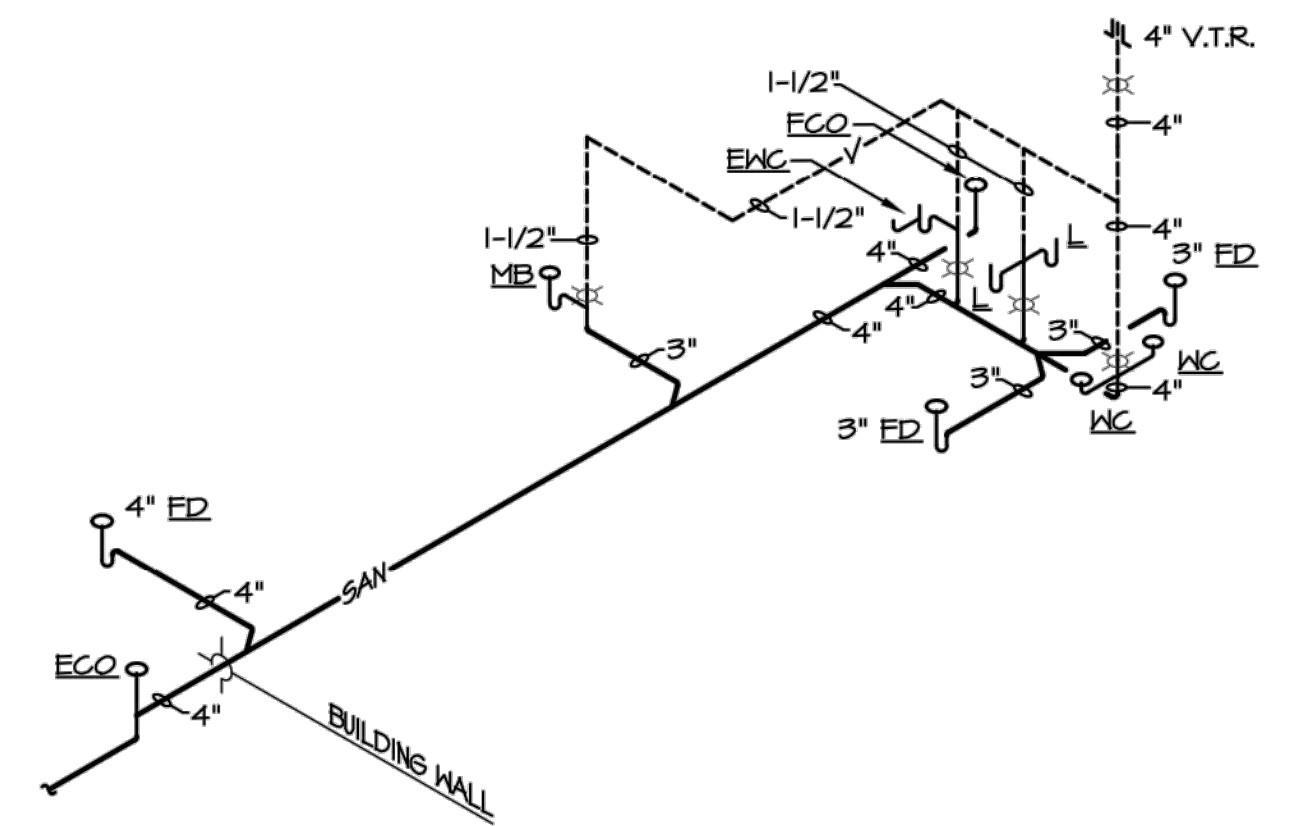
CONTRACTOR TO PROVIDE NEW SPRINKLER SYSTEM FOR COMPLETE BUILDING. REFER TO SPECIFICATIONS 21 05 00. COORDINATE FINAL LOCATION OF SPRINKLER HEADS WITH ARCHITECTURAL REFLECTED CEILING PLANS. SUBMIT SPRINKLER DRAWINGS AND HYDRAULIC CALCULATIONS TO BUILDING DEPARTMENT.

**GENERAL NOTES**

- A. REFER TO SHEET P-2 FOR PLUMBING FIXTURE CONNECTION SCHEDULE FOR ALL FIXTURE CONNECTION SIZES.
- B. REFER TO THIS SHEET FOR SANITARY STACK DIAGRAM FOR ALL SANITARY AND VENT SIZES.

**PLAN NOTES**

- 1. 2 INCH DOMESTIC WATER SLEEVED AND SEALED UP THROUGH FLOOR TO WATER METER AND BACKFLOW PREVENTER TO MEET ASSE STANDARD 1013. SEE SHEET P-2 FOR DETAIL.
- 2. 4 INCH FIRELINE SLEEVED AND SEALED UP THROUGH FLOOR, TO DOUBLE CHECK DETECTOR ASSEMBLY. REFER TO FIRE PROTECTION GENERAL NOTE ON THIS SHEET AND SEE SHEET P-2 FOR DETAIL.
- 3. STORM SEWER PIPING UP THROUGH ROOF.
- 4. STORM SEWER PIPING DOWN DOWN ALONG WALL OR IN CHASE TO BELOW FLOOR. PROVIDE CLEAN-OUT AT BASE.
- 5. OVERFLOW STORM SEWER PIPING DOWN ALONG WALL OR IN CHASE TO OUTLET 30 INCHES ABOVE GRADE OUTSIDE. TERMINATE WITH DOWNSPOUT NOZZLE (COW TONGUE) J.R. SMITH MODEL #IT10.
- 6. VENT PIPING UP TO VENT THROUGH ROOF.
- 7. 3/4" COLD WATER DOWN ALONG WALL OR IN CHASE TO SERVE WALL HYDRANT. SLEEVE AND SEAL THROUGH WALL AT 30 INCHES ABOVE GRADE OUTSIDE.
- 9. 3/4" HOT WATER AND 1-1/2" COLD WATER DOWN IN CHASE TO SERVE FIXTURES.
- 10. 3/4" COLD WATER TO AND 3/4" HOT WATER FROM ELECTRIC WATER HEATER ABOVE MOP BASIN ON SHELF. SEE SHEET P-2 FOR ELECTRIC WATER HEATER DETAIL AND SCHEDULE.
- 11. 4" FIRELINE FROM BUILDING BELOW GRADE TO FIRE DEPARTMENT CONNECTION. REFER TO CIVIL DRAWING FOR LOCATION.
- 12. 1-1/2" SLEEVED AND SEALED THROUGH WALL FOR IRRIGATION.
- 13. FIRELINE AND FIRE DEPARTMENT CONNECTION TO BE BROUGHT INSIDE BUILDING AS PART OF SITE CONTRACT A, WHICH MAKES REFERENCE TO THE LOCATION SHOWN ON THIS DRAWING. THIS WORK IS NOT INCLUDED AS PART OF THIS CONTRACT B.



**SANITARY STACK DIAGRAM**  
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## PLUMBING FIXTURE AND EQUIPMENT SCHEDULE

MARK	FIXTURE/EQUIPMENT	MANUFACTURER AND MODEL NUMBER
WC-1	WATER CLOSET FLUSH VALVE ADA	FIXTURE: FLOOR MOUNTED, FLUSH VALVE, WHITE VITREOUS CHINA, ELONGATED BOWL, 1-1/2 INCH TOP SPUD, SIPHON JET ACTION, 1.6 GALLONS PER FLUSH, 16-1/2 INCH BOWL HEIGHT, AMERICAN STANDARD "MADERA" 2851.016 WITH MANUAL FLUSH VALVE, 1.6 GPM OR APPROVED EQUAL. SEAL: WHITE, HEAVY DUTY COMMERCIAL GRADE, OPEN FRONT, SELF-SUSTAINING CHECK HINGES WITH STAINLESS STEEL POSTS BY CHURCH MODEL 4500C OR APPROVED EQUAL.
L-1	LAVATORY WALL-HUNG	FIXTURE: 20 INCH x 18 INCH WALL HUNG LAVATORY, 4 INCH CENTERS, AMERICAN STANDARD 0355.012 "LUCERNE" OR APPROVED EQUAL. FAUCET: SINGLE CONTROL LAVATORY FAUCET ON 4 INCH CENTERS, WASHER-LESS CERAMIC DISC VALVE CARTRIDGE, METAL LEVER HANDLE, 0.5 GPM VANDAL PROOF, NON-AERATING SPRAY, AMERICAN STANDARD MODEL 7385.050 @ 0.5 GPM OR APPROVED EQUAL. CARRIER: ADJUSTABLE CARRIER WITH STEEL UPRIGHTS, ARMS FOR CONCEALED MOUNTING, BLOCK FEET FOR SECURING TO FLOOR AND FRAMING, WADE W-520 OR ZURN. SUPPLIES: FURNISH CHROME PLATED RIGID OR FLEXIBLE SUPPLIES WITH LOOSE KEY STOPS, REDUCERS, AND ESCUTCHEONS. INSULATED FOR ADA COMPLIANCE. DRAIN: STAINLESS STEEL NON-REMOVABLE STRAINER WITH 1-1/4 INCH TAILPIECE. CHICAGO FAUCET NO. 321. TRAP: CHROME PLATED CAST BRASS ADJUSTABLE "P" TRAP WITH CLEANOUT AND IT GAUGE WASTE TO WALL WITH ESCUTCHEON. INSULATED AND OFFSET TO MEET ADA COMPLIANCE. PROVIDE PLUMBEX MODEL X414 TRAP COVER AND MODEL X4333 PRO EXTREME TRAP WRAP.
EW-1	ELECTRIC WATER COOLER	FIXTURE: SPLIT LEVEL, DOUBLE UNIT, WALL MOUNTED, BARRIER FREE, ELECTRIC WATER COOLER HAVING MINIMUM CAPACITY OF 8.0 GPH OF 50 DEGREE F WATER AT 80 DEGREE F INLET WATER AND 90 DEGREE F ROOM TEMPERATURE. FRONT PUSH PAD. SHIELDED ONE-PIECE CHROME PLATED BUBBLER. FURNISH BRACKET FOR WALL MOUNTING AND FLEXIBLE POWER CABLE WITH THREE PRONGED GROUNDED PLUG. FURNISH APRON FOR UPPER UNIT. REFRIGERANT: R-134A. FINISH: STAINLESS STEEL TOP, CABINET FINISH AS SELECTED BY ARCHITECT. MANUFACTURER: OASIS MODEL P68ACSL OR SIMILAR BY ELKAY. ROUGH-IN: PROVIDE STOP VALVE, CAST BRASS P-TRAP, AND IT GAUGE TAILPIECE. MOUNTING HEIGHT: TO ACCOMMODATE WHEELCHAIR USERS.
MB-1	MOP BASIN	FIXTURE: MUSTEE 63M, 24 X 24 X 10 INCH HIGH MOLDED STONE, FLOOR MOUNTED, STAINLESS STEEL STRAINER. FAUCET: MUSTEE MODEL 63.600A FAUCET, ROUGH CHROME FINISH, THREADED SPOUT WITH BUCKET HOOK, VACUUM BREAKER, HOSE OUTLET SPOUT END, WALL BRACE, CAST BRASS INDEXED LEVER HANDLES, AND STOPS IN SHANKS OR EQUAL. ACCESSORIES: 48 INCH LONG HEAVY DUTY, 5/8 INCH DIAMETER HOSE AND HOSE CLIP, STAINLESS STEEL HOSE BRACKET, AND STAINLESS STEEL MOP HANGER WITH 3 GRIPS.
RD-1	COMBINATION ROOF DRAIN & OVERFLOW DRAIN	12 INCH DIAMETER ROOF DRAIN AND OVERFLOW DRAIN, DURA-COATED CAST IRON BODIES WITH COMBINATION MEMBRANE FLASHING/ GRAVEL GUARDS, DOUBLE TOP-SET DECK PLATE, AND LOW SILHOUETTE POLY-DOMES. NO-HUB OR THREADED. ZURN MODEL Z164 OR APPROVED EQUAL.
DSC-1	DOWNSPOUT COVER	ROUND FABRICATED STAINLESS STEEL FRAME WITH FABRICATED SECURED PERFORATED STAINLESS STEEL HINGED STRAINER. ZURN MODEL Z191-DC OR APPROVED EQUAL.
FD-1	FLOOR DRAIN	FLOOR DRAIN: PVC ADJUSTABLE ROUND NICKEL BRONZE. SIOUX CHIEF 832-36PBR WITH 6 INCH NB TOP OR APPROVED EQUAL.
FD-2	FLOOR DRAIN WITH FUNNEL	FLOOR DRAIN WITH FUNNEL: PVC ADJUSTABLE ROUND NICKEL BRONZE. SIOUX CHIEF 832-36PBR WITH 6 INCH NB TOP OR APPROVED EQUAL. PROVIDE CONDENSATE FUNNEL 863 SERIES MODEL FND WITH FASTENING SCREWS.
TP-1	TRAP SEALER	SURE SEAL MODEL 563004V & 564004V INLINE FLOOR DRAIN TRAP SEAL. COMMERCIAL GRADE UV AND OZONE RESISTANT ABS PLASTIC HOUSING WITH PROPRIETARY EPDM RUBBER DIAPHRAGM AND SOFT RUBBER SEALING GASKET. FLOOR RATING ASSE - 1072 AF-6M.
FCO	FLOOR CLEANOUT	FLOOR CLEAN-OUT: ADJUSTABLE ON-GRADE CLEAN-OUT, SCORRIATED CLEAN-OUT COVER, PVC WITH ROUND NICKEL BRONZE TOP. SIOUX CHIEF 834 SERIES
ECO	EXTERIOR CLEANOUT	CAST IRON ACCESS HOUSING, PUSH-JOINT GASKET, CAST IRON COVER WITH ADJUSTABLE ANCHOR FLANGE AND EXTRA HEAVY SECURED NON-SKID CAST IRON COVER WITH VANDAL PROOF SCREWS. SIOUX CHIEF 851 SERIES OR SIMILAR BY MIFAB OR ZURN. FULL SIZE OF PIPE AND NOT LESS THAN 4 INCHES FOR LARGER SIZES.
WH-1	WALL HYDRANT NON-FREEZE	FITTING: ZURN Z1321-CXL ECOLOTROL WALL HYDRANT. EXPOSED. NON-FREEZE, ANTI-SIPHON WITH AUTOMATIC DRAINING, WITH 3/4 INCH HOSE CONNECTION OR APPROVED EQUAL.
	WATER HAMMER ARRESTORS	PERMANENTLY SEALED BELLOWS OR EXPANDING CHAMBER TYPE DEVICE FOR CONTROL OF WATER HAMMER, P.D.I. APPROVED. SMITH HYDROTROL OR SIMILAR BY JOSAM, MIFAB, WADE, ZURN, OR EQUAL.

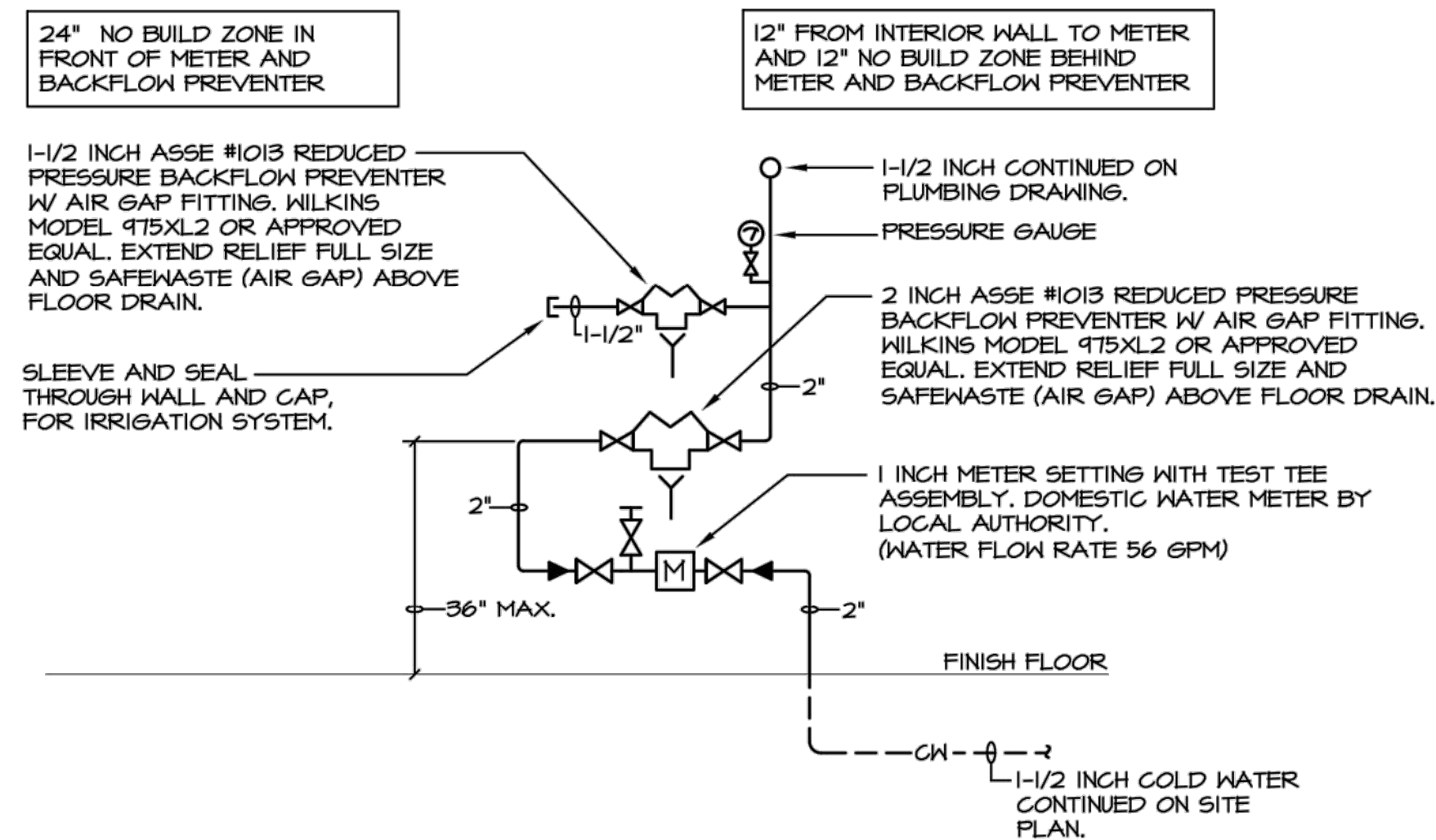
NOTES:  
1 - PLUMBING FIXTURES AND EQUIPMENT ARE TO BE PROVIDED BY PLUMBING CONTRACTOR, UNLESS OTHERWISE NOTED.

## WATER HEATER SCHEDULE

MARK	MANUFACTURER	MODEL	FUEL	KW INPUT	STORAGE CAPACITY (gallons)	FINAL TEMPERATURE (degrees F)	RECOVERY GPH	TEMPERATURE RISE (degrees F)	VOLTAGE	EXPANSION TANK	REMARKS
EW-1	RHEEM	PROEIO 1 CN POU	ELECTRIC	2.0	10	120	9	90	120V-1PH	AMTROL MODEL ST-5	NON-SIMULTANEOUS ELEMENT OPERATION

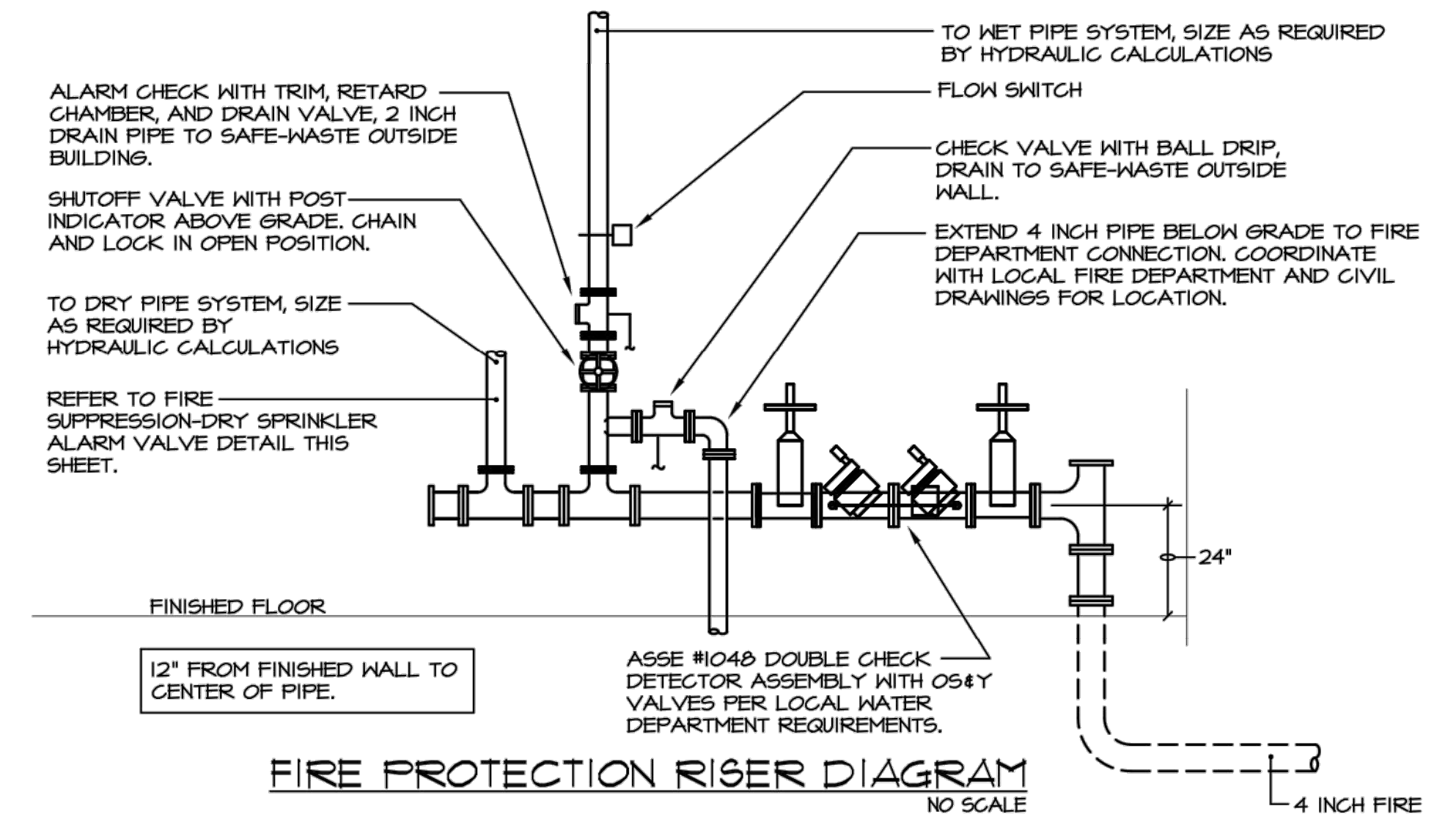
## FIXTURE CONNECTION SCHEDULE

ITEM	DESCRIPTION	CONNECTION		
		HW	CW	VENT
WC	WATER CLOSET (FLUSH VALVE)	—	1"	4"
L	LAVATORY	1/2"	1/2"	1-1/4"
MR	MOP RECEPTOR	1/2"	1/2"	3"
EW	ELECTRIC WATER COOLER	—	1/2"	1-1/4"

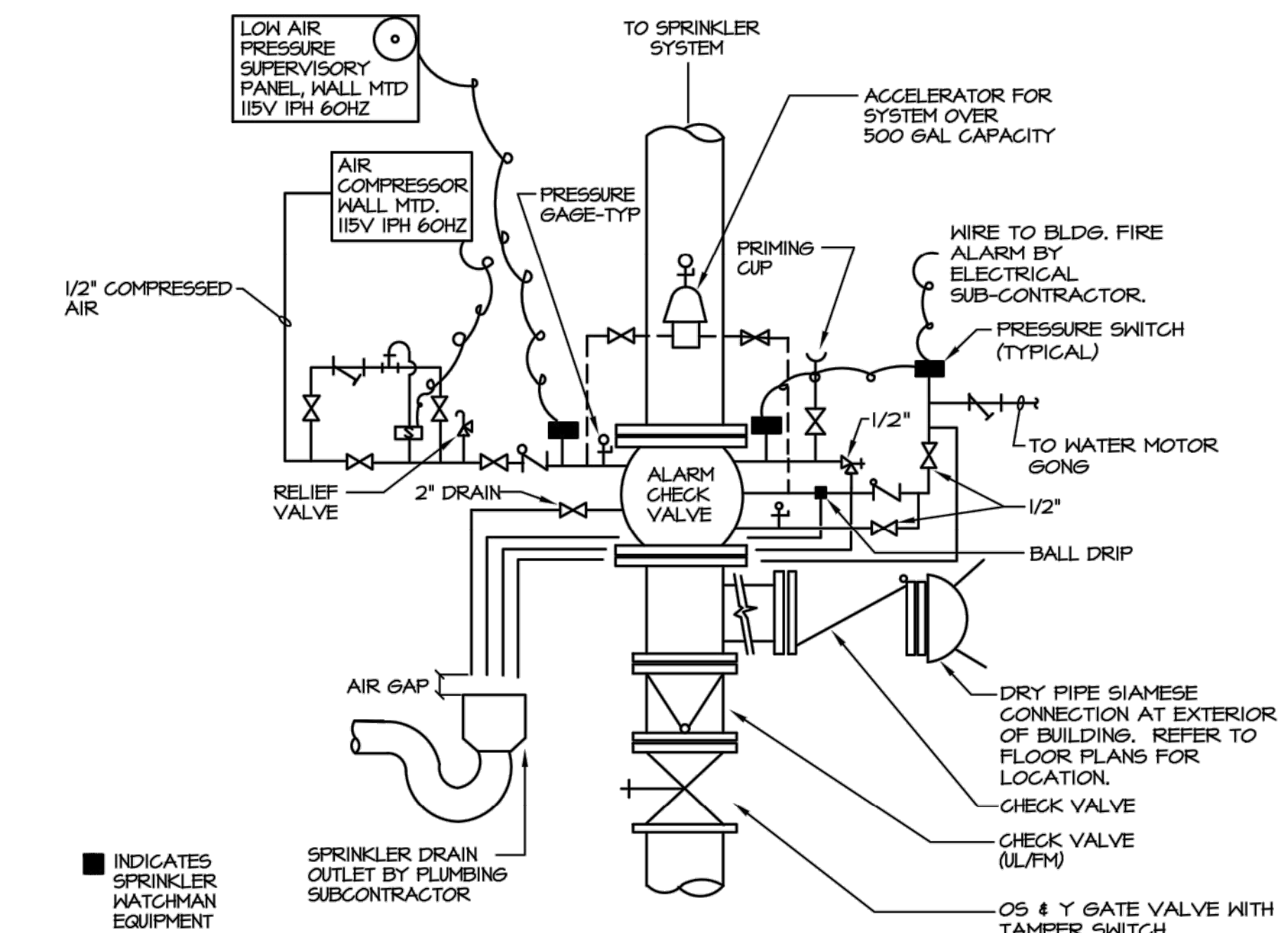


## DOMESTIC WATER SERVICE ENTRANCE DETAIL

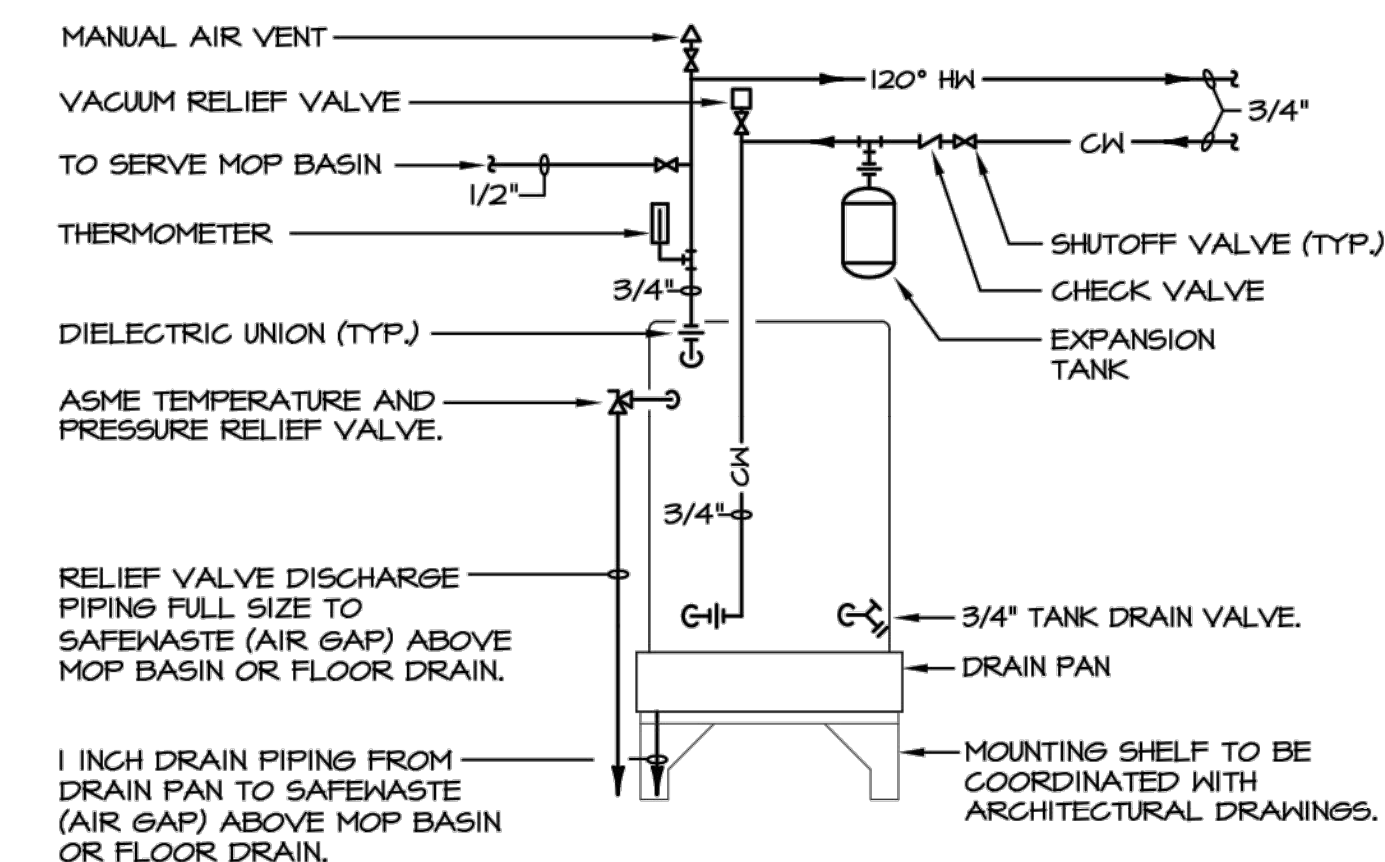
NOTE:  
REFER TO STANDARD DETAIL FOR WATER METER AND BACKFLOW PREVENTER SETTING FOR THE CITY OF KIRTLAND AND LAKE COUNTY, OHIO, DEPARTMENT OF PUBLIC UTILITIES DIVISION OF WATER AND FOR DIMENSIONS ON THE NO BUILD ZONE IN FRONT AND BEHIND THE BACKFLOW PREVENTER.



NOTE:  
ALL PIPING, VALVES, AND DEVICES ARE PROVIDED BY THE FIRE PROTECTION CONTRACTOR. PROVIDE AS REQUIRED BY NFPA 13 AND LOCAL AUTHORITY HAVING JURISDICTION.



## ELECTRIC WATER HEATER DETAIL

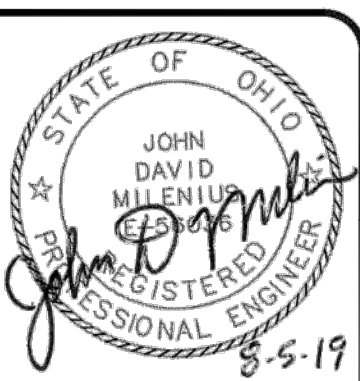


## ELECTRIC WATER HEATER DETAIL

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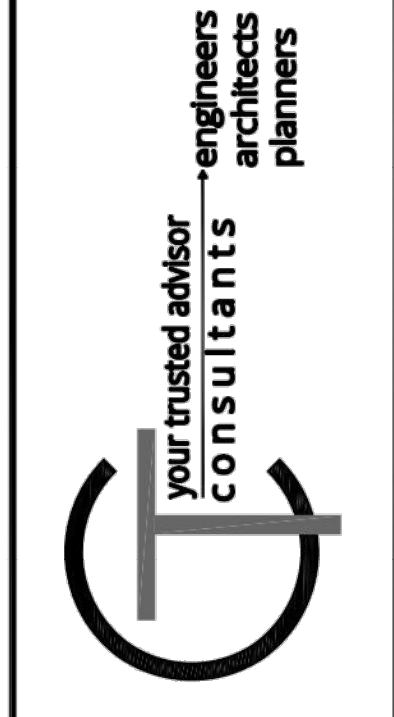
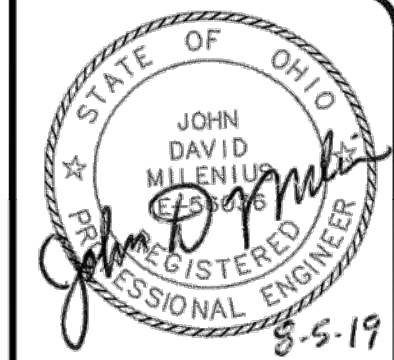
your trusted advisor  
engineers  
architects  
planners  
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DATE	REVISION	NO	CD	ISSUED FOR	ISSUE DATE	SCALE	DESIGNED BY	DRAWN BY	CHECKED BY
			05/31/19	AS SHOWN	JKJ	JKJ	JDM		

LAKELAND TRANSFER STATION  
LAKELAND COMMUNITY COLLEGE  
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PLUMBING PLAN, LEGEND, ABBREV.,  
NOTES, & STACK DIAGRAM

PROJECT NO.	18050002
DISCIPLINE	PLUMBING
SHEET NAME	P-2
SHEET	OF
50	55



ISSUED FOR:	CD	NO	REVISION	DATE
ISSUE DATE:	05/31/19			
SCALE:	AS SHOWN			
DESIGNED BY:	JJK			
DRAWN BY:	JJK			
CHECKED BY:	JDM			

**LAKELAND TRANSFER STATION**  
**LAKELAND COMMUNITY COLLEGE**  
 7700 CLOCKTOWER DR., KIRTLAND, OH 44094

**PLUMBING PLAN, LEGEND, ABBREV.,  
 NOTES, & STACK DIAGRAM**

PROJECT NO.	
<b>18050002</b>	
DISCIPLINE	
<b>PLUMBING</b>	
SHEET NAME	
<b>P-3</b>	
SHEET	OF
<b>51</b>	<b>55</b>

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- D. INSTALL PRESSURE GAGES WITH GAGE COCK.
- E. INSTALL THERMOMETERS IN PIPING SYSTEMS IN SOCKETS.
- F. PROVIDE 3/4 INCH BALL DRAIN VALVES AT MAIN SHUT-OFF VALVES, LOW POINTS OF PIPING, BASES OF VERTICAL RISERS, AND AT EQUIPMENT.
- G. CLEAN AND TEST DOMESTIC WATER PIPING SYSTEM IN ACCORDANCE WITH OHIO PLUMBING CODE.
- H. TEST SANITARY AND VENT PIPING IN ACCORDANCE WITH OHIO PLUMBING CODE.

SECTION 22 07 00 - PLUMBING INSULATION

- PART 1 GENERAL
- 1.1 SUBMITTALS
    - A. PRODUCT DATA: NOT REQUIRED.
    - B. SAMPLES: NOT REQUIRED.
    - C. PRODUCTS
  - 1.2 PIPE INSULATION
    - A. GLASS FIBER: RIGID MOLDED, NONCOMBUSTIBLE WITH VAPOR BARRIER JACKET.
    - B. CELLULAR FOAM: FLEXIBLE, CELLULAR ELASTOMERIC, MOLDED OR SHEET.
    - C. PIPE INSULATION RATED FOR 0-1000 DEGREES F, WITH A "K" FACTOR OF 0.24 AT A MEAN TEMPERATURE OF 100 DEGREES F. REFER TO SCHEDULE FOR INSULATION REQUIRED THICKNESS.
    - D. INSULATION SHALL NOT CONTAIN ANY PBEDE (POLYBROMINATED DIPHENYL ETHERS) FLAME RETARDANTS.
    - E. JACKETS
      - 1. PVC PLASTIC: ONE PIECE MOLDED TYPE FITTING COVERS AND SHEET MATERIAL, OFF-WHITE COLOR.

PART 2 EXECUTION

2.1 INSTALLATION

- A. PIPING INSULATION
  - 1. PROVIDE COLD PIPES WITH VAPOR BARRIER JACKETS. INSULATE COMPLETE SYSTEM.

2.2 SCHEDULES

	PIPE SIZE INCH	INSULATION THICKNESS INCH	
		PIPE SIZE INCH	INSULATION THICKNESS INCH
1. DOMESTIC HOT WATER SUPPLY	UP TO 1.0		1.0
2. DOMESTIC COLD WATER	ALL SIZES		0.5

SECTION 22 30 00 - PLUMBING EQUIPMENT

- PART 1 GENERAL
- 1.1 SUBMITTALS
    - A. PRODUCT DATA: REQUIRED. SUBMIT EACH TYPE OF PLUMBING SPECIALTY.
- PART 2 PRODUCTS
- 2.1 PLUMBING DRAINAGE SPECIALTIES
    - A. REFER TO PLUMBING DRAWINGS FOR DRAINAGE SPECIALTIES.
  - 2.2 PLUMBING SUPPLY SPECIALTIES
    - A. REFER TO PLUMBING DRAWINGS FOR SUPPLY SPECITIES.
  - 2.3 PLUMBING EQUIPMENT
    - A. REFER TO PLUMBING DRAWINGS FOR PLUMBING EQUIPMENT.
    - B. ELECTRIC WATER HEATER:
      - 1. RESIDENTIAL STORAGE TANK TYPE: LOW WATT DENSITY ELEMENT, FACTORY ASSEMBLED AND WIRED, STEEL TANK, GLASS LINED, BAKED ENAMEL FINISH WITH AUTOMATIC IMMERSION WATER THERMOSTAT, FLANGED OR SCREW IN IMMERSION TYPE ELEMENTS.
      - 2. TANK INSULATED TO CONFORM TO ASHRAE STANDARDS.
      - 3. FURNISH ASME TEMPERATURE AND PRESSURE RELIEF VALVE.
      - 4. TANK DRAIN.
      - 5. A.O. SMITH OR APPROVED EQUAL.
- PART 3 EXECUTION
- 3.1 INSTALLATION
    - A. INSTALL UNIONS DOWNSTREAM OF VALVES AND AT EQUIPMENT OR APPARATUS CONNECTIONS.

SECTION 22 40 00 - PLUMBING FIXTURES

- PART 1 GENERAL
- 1.1 SUBMITTALS
    - A. PRODUCT DATA: REQUIRED. SUBMIT EACH TYPE OF PLUMBING FIXTURE AND TRIM.
- PART 2 PRODUCTS
- 2.1 PLUMBING FIXTURES
    - A. REFER TO PLUMBING DRAWING FOR PLUMBING FIXTURES.
- PART 3 EXECUTION
- 3.1 INSTALLATION
    - A. INSTALL EACH FIXTURE WITH CHROME PLATED RIGID OR FLEXIBLE SUPPLIES WITH SCREWDRIVER STOPS, REDUCERS, AND ESCUTCHEONS.
    - B. SEAL SPACE BETWEEN PLUMBING FIXTURES AND WALL OR FLOOR WITH SILICONE SEALANT TO PROVIDE WATERTIGHT INSTALLATION.
    - C. INSTALL UNIONS DOWNSTREAM OF VALVES AND AT EQUIPMENT OR APPARATUS CONNECTIONS.

SECTION 21 05 00 - COMMON WORK RESULTS FOR FIRE SUPPRESSION

- PART 1 GENERAL
- 1.1 SYSTEM DESCRIPTION
    - A. SYSTEM TO PROVIDE COVERAGE FOR ENTIRE BUILDING WITH A WET AND DRY PIPE SPRINKLER SYSTEM.
    - B. DESIGN REQUIREMENTS - SPRINKLER SYSTEM: LIGHT HAZARD OCCUPANCY REQUIREMENTS.
    - C. DETERMINE VOLUME AND PRESSURE OF INCOMING WATER SUPPLY BY PERFORMING A FLOW TEST PRIOR TO BIDDING.
  - 1.2 SUBMITTALS
    - A. SUBMIT SHOP DRAWINGS, PRODUCT DATA, AND HYDRAULIC CALCULATIONS TO AUTHORITY HAVING JURISDICTION FOR APPROVAL. SUBMIT PROOF OF APPROVAL TO ARCHITECT.
    - B. SHOP DRAWINGS: REQUIRED. INDICATE HYDRAULIC CALCULATIONS, DETAILED PIPE LAYOUT, HANGERS AND SUPPORTS, SPRINKLERS, COMPONENTS AND ACCESSORIES. INDICATE SYSTEM CONTROLS.
    - C. PRODUCT DATA: REQUIRED. PROVIDE DATA ON SPRINKLERS, VALVES, AND SPECIALTIES, INCLUDING MANUFACTURER'S CATALOG INFORMATION. SUBMIT PERFORMANCE RATINGS, ROUGH-IN DETAILS, WEIGHTS, SUPPORT REQUIREMENTS, AND PIPING CONNECTIONS.
    - D. PROJECT RECORD DOCUMENTS: REQUIRED.
  - 1.3 QUALITY ASSURANCE
    - A. REGULATORY REQUIREMENTS
      - 1. SPRINKLER SYSTEMS: CONFORM TO NFPA 13.
      - 2. EQUIPMENT AND COMPONENTS: UL LABELED.

PART 2 PRODUCTS

- 2.1 PIPE AND TUBE
- A. STEEL: SCHEDULE 40 BLACK WITH STEEL, CAST IRON, OR MALLEABLE IRON FITTINGS, OR MECHANICAL GROOVED COUPLINGS.
  - B. COPPER: TYPE M OR L HARD DRAWN, WITH SOLDER OR BRAZED JOINTS.
  - C. CAST IRON: AWWA C151.
  - D. FLEXIBLE SPRINKLER DROPS THAT ARE LISTED ARE ACCEPTABLE FOR PIPING FROM BRANCH TO SPRINKLER HEAD.
- 2.2 SPRINKLERS
- A. SUSPENDED CEILING TYPE: CONCEALED PENDANT TYPE WITH ENAMELLED FINISH, AND MATCHING ESCUTCHEON.
  - B. EXPOSED AREA TYPE: STANDARD UPRIGHT TYPE WITH CHROME PLATED FINISH.
  - C. SIDEWALL TYPE: SEMI-RECESSED ENAMELLED FINISH WITH MATCHING ESCUTCHEON.

PART 3 EXECUTION

- 3.1 INSTALLATION
  - A. PROVIDE GATE VALVES FOR SHUT-OFF OR ISOLATING SERVICE. WHERE APPROVED, USE BUTTERFLY VALVES INSTEAD OF GATE VALVES.
  - B. PROVIDE DRAIN VALVES AT MAIN SHUT-OFF VALVES, LOW POINTS OF PIPING AND APPARATUS.
  - C. CONNECT SYSTEM TO WATER SOURCE AHEAD OF DOMESTIC WATER CONNECTION WITH DOUBLE DETECTOR CHECK VALVE ASSEMBLY.
  - D. HYDROSTATICALLY TEST ENTIRE SYSTEM. TEST WITNESSED BY FIRE MARSHAL AND OR AUTHORITY HAVING JURISDICTION.

SECTION 22 05 00 - COMMON WORK RESULTS FOR PLUMBING

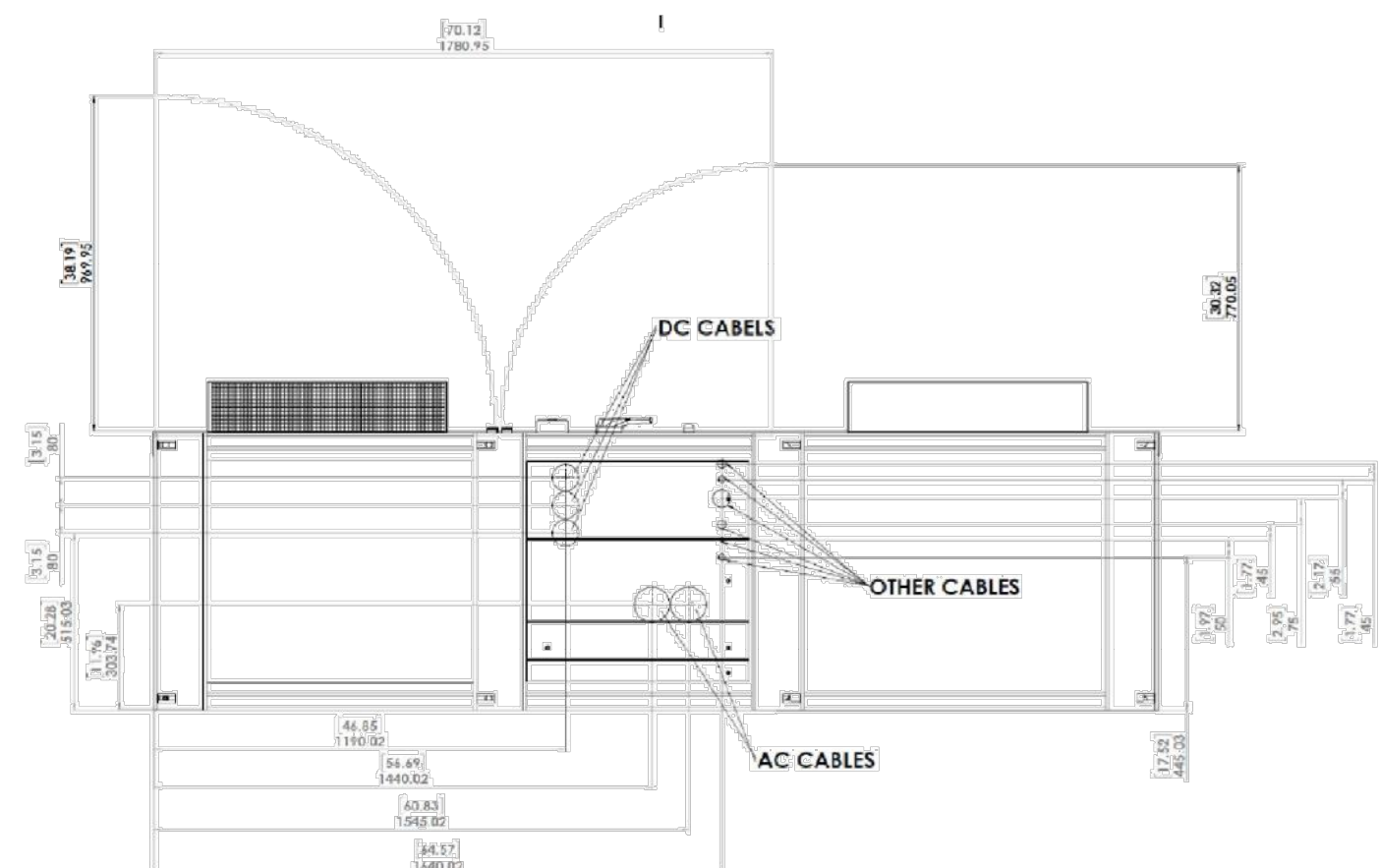
- PART 1 GENERAL
- 1.1 SUBMITTALS
    - A. PRODUCT DATA: SUBMIT VALVES AND GAGES.
  - 1.2 LEAD CONTENT OF DRINKING WATER PIPE AND FITTINGS:
    - A. PIPE, PIPE FITTINGS, JOINTS, VALVES FAUCETS AND FIXTURE FITTINGS UTILIZED TO SUPPLY WATER FOR DRINKING OR COOKING PURPOSES WILL COMPLY WITH THE REQUIREMENTS OF NSF 372 AND SHALL HAVE A WEIGHTED LEAD CONTENT OF 0.25 PERCENT LEAD OR LESS.
- PART 2 PRODUCTS
- 2.1 PIPING
- A. SANITARY SEWER AND VENT BURIED: SERVICE WEIGHT CAST IRON, TYPE DWV COPPER TUBE, ABS TYPE DWV, SOLID WALL PVC TYPE DWV.
  - B. SANITARY SEWER AND VENT ABOVE GRADE: SERVICE WEIGHT CAST IRON, TYPE DWV COPPER TUBE, ABS TYPE DWV, PVC TYPE DWV. DO NOT USE PVC OR ABS PIPING IN RETURN AIR PLENUMS.
  - C. DOMESTIC WATER BURIED WITHIN 8 FEET OF BUILDING: DUCTILE IRON PIPE: AWWA C151, FITTINGS: AWWA C110, DUCTILE OR GRAY IRON, STANDARD THICKNESS. JOINTS: AWWA C111, RUBBER GASKET WITH 3/4 INCH DIAMETER RODS.
  - D. DOMESTIC WATER ABOVE GRADE: TYPE L COPPER TUBE, HARD DRAWN, SOLDERED JOINTS WITH 95-5 SOLDER, OR COPPER PRESS FITTINGS CONFORMING TO ASME B16.18 CAST COPPER ALLOY OR ASME B16.22, WROUGHT COPPER AND BRONZE WITH EPDM O-RING SEALS, COMPRESSION TYPE JOINTS MADE WITH MANUFACTURER'S TOOL.
- 2.2 VALVES
- A. BALL VALVES
    - 1. DOMESTIC WATER: 3 INCHES AND SMALLER, 180 SWP, 600 WOG, TWO PIECE BODY, THREADED ENDS, ALL BRONZE CONSTRUCTION, TEFLON SEATS, CHROME PLATED SOLID BRONZE BALL, CONVENTIONAL PORT, BLOWOUT PROOF STEM, LEVER HANDLE.
  - B. SPRING LOADED CHECK VALVES: IRON BODY, BRONZE TRIM, STAINLESS STEEL SPRING, RENEWABLE COMPOSITION DISC.
- 2.3 GAGES
- A. PRESSURE GAGES: STEEL OR ALUMINUM CASE, 4-1/2 INCH DIAMETER, ONE PERCENT (1%) MID-SCALE ACCURACY.
  - B. STEM TYPE THERMOMETERS: RED APPEARING, SPIRIT FILLED, ADJUSTABLE ANGLE, LENS FRONT TUBE, CAST ALUMINUM CASE, 9 INCH SCALE.
- 2.4 PIPE HANGERS
- A. ALL SERVICES: CLEVIS TYPE CONFORMING TO MSS TYPE 1.
  - B. UPPER ATTACHMENTS: COMPATIBLE WITH TYPE OF STRUCTURE BEING USED.
- 2.5 PLUMBING IDENTIFICATION
- A. VALVE TAGS: BRASS WITH STAMPED LETTERS AND BRASS "S" HOOKS. PROVIDE TYPE WRITTEN SCHEDULE OF VALVE TAGS AND LOCATIONS TO OWNER AT COMPLETION OF PROJECT.
  - B. PIPING IDENTIFICATION: SNAP ON PLASTIC MARKERS WITH SYSTEM NAME AND FLOW DIRECTION.

PART 3 EXECUTION

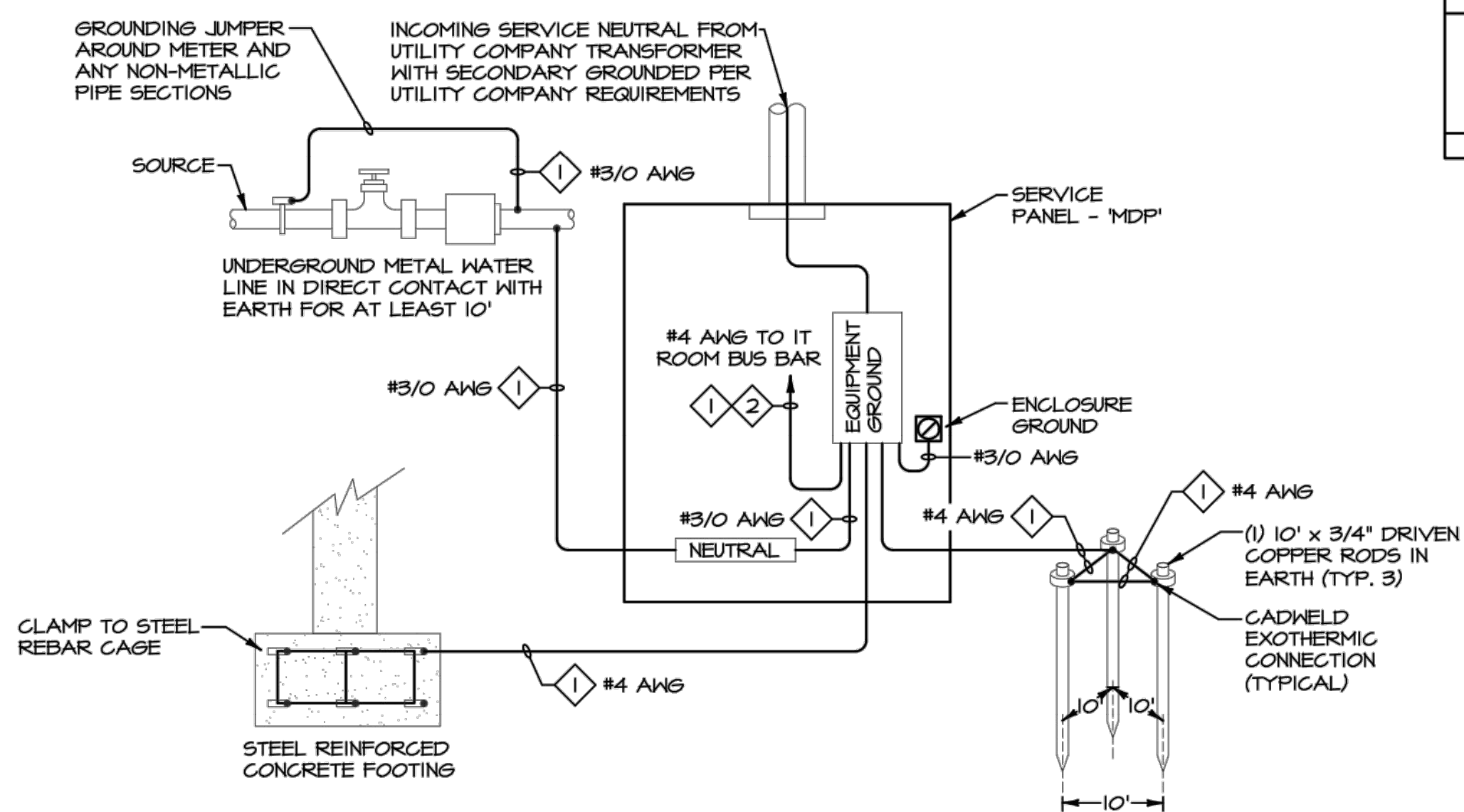
- 3.1 INSTALLATION
  - A. PROVIDE DIELECTRIC CONNECTIONS WHEREVER JOINTING DISSIMILAR METALS.
  - B. INSTALL BALL VALVES FOR SHUT OFF APPLICATIONS (2 INCH AND SMALLER) IN DOMESTIC WATER SYSTEMS.
  - C. INSTALL BALL VALVES FOR THROTTLING OR BYPASS APPLICATIONS IN DOMESTIC WATER SYSTEMS.

### ELECTRICAL SERVICE LOAD SUMMARY

LOAD	KW CONNECTED	DEMAND FACTOR	KW DEMAND	NOTES
INTERIOR LIGHTING	0.8	100%	0.8	
EXTERIOR LIGHTING	5.3	100%	5.3	
CONVENIENCE RECEPTACLES	3.3	NEC	3.3	
MISC. BUILDING EQUIPMENT	6.4	50%	3.2	
MISC. MECHANICAL EQUIPMENT	2.1	100%	2.1	
AIR CONDITIONING EQUIPMENT	23.3	100%	23.3	
(2) TWO BUS CHARGERS	1109.4	100%	1109.4	
<b>TOTALS</b>	<b>1150.6</b>	<b>-</b>	<b>1147.4</b>	<b>-</b>
SERVICE VOLTAGE: 480Y/277-3PH-4W		DEMAND AMPERES: 1301.7		



**BOTTOM VIEW OF PROTERRA 500 KW CHARGING CABINET**  
NO SCALE

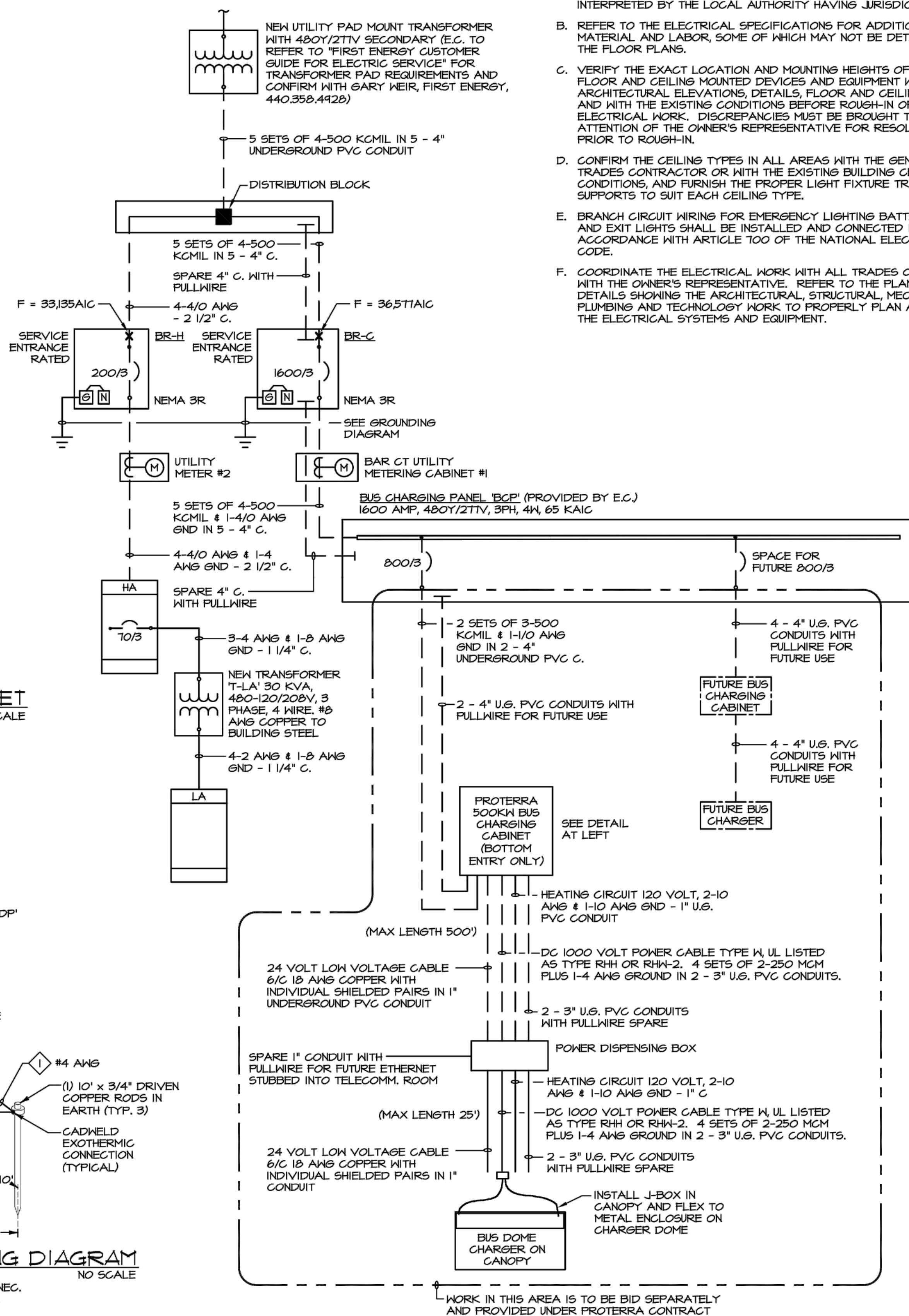


**SERVICE GROUNDING ELECTRODE SYSTEM WIRING DIAGRAM**  
NO SCALE

- 1 THE GROUNDING ELECTRODE CONDUCTORS SHALL BE SIZED PER TABLE 250-66 OF THE NEC. RUN CONCEALED IN AREAS OF FINISHED CONSTRUCTION, EXPOSED IN UN-FINISHED AREAS.
- 2 GROUND CONDUCTORS TO OTHER POINTS AND EQUIPMENT, AS REQUIRED BY NEC ARTICLE 250.

### GENERAL ELECTRICAL NOTES

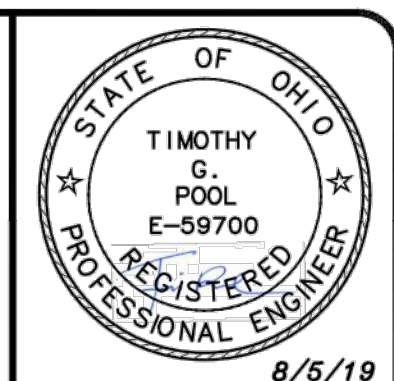
- THE ELECTRICAL INSTALLATION MUST MEET OR EXCEED THE MINIMUM REQUIREMENTS OF THE LATEST EDITION OF THE NATIONAL ELECTRIC CODE AND ANY APPLICABLE STATE OR LOCAL CODES, AS INTERPRETED BY THE LOCAL AUTHORITY HAVING JURISDICTION.
- REFER TO THE ELECTRICAL SPECIFICATIONS FOR ADDITIONAL MATERIAL AND LABOR, SOME OF WHICH MAY NOT BE DETAILED ON THE FLOOR PLANS.
- VERIFY THE EXACT LOCATION AND MOUNTING HEIGHTS OF WALL, FLOOR AND CEILING MOUNTED DEVICES AND EQUIPMENT WITH THE ARCHITECTURAL ELEVATIONS, DETAILS, FLOOR AND CEILING PLANS AND WITH THE EXISTING CONDITIONS BEFORE ROUGH-IN OF THE ELECTRICAL WORK. DISCREPANCIES MUST BE BROUGHT TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE FOR RESOLUTION PRIOR TO ROUGH-IN.
- CONFIRM THE CEILING TYPES IN ALL AREAS WITH THE GENERAL TRADES CONTRACTOR OR WITH THE EXISTING BUILDING CEILING CONDITIONS, AND FURNISH THE PROPER LIGHT FIXTURE TRIMS AND SUPPORTS TO SUIT EACH CEILING TYPE.
- BRANCH CIRCUIT WIRING FOR EMERGENCY LIGHTING BATTERY PACKS AND EXIT LIGHTS SHALL BE INSTALLED AND CONNECTED IN ACCORDANCE WITH ARTICLE 700 OF THE NATIONAL ELECTRICAL CODE.
- COORDINATE THE ELECTRICAL WORK WITH ALL TRADES ON SITE AND WITH THE OWNER'S REPRESENTATIVE. REFER TO THE PLANS AND DETAILS SHOWING THE ARCHITECTURAL, STRUCTURAL, MECHANICAL, PLUMBING AND TECHNOLOGY WORK TO PROPERLY PLAN AND INSTALL THE ELECTRICAL SYSTEMS AND EQUIPMENT.



**ONE LINE DIAGRAM**  
NO SCALE

### ELECTRICAL SYMBOLS

- A BRANCH CIRCUIT HOMERUN TO PANEL "A", CIRCUIT #3 AND #5. PROVIDE THE PROPER QUANTITY OF 12 AWG CONDUCTORS FOR THE CIRCUIT(S) INDICATED. A SEPARATE GROUNDING CONDUCTOR IS REQUIRED FOR ALL BRANCH CIRCUITS.
- S SINGLE POLE SWITCH - MOUNTING AT 48" A.F.F.
- S<sup>OV</sup> LOW VOLTAGE BUILDING OVERRIDE SWITCH - SEE PLANS FOR ADDITIONAL DETAILS
- PHOTOCELL - MOUNTING AS NOTED ON PLAN
- M OCCUPANCY SENSOR SWITCH WITH OVERRIDE SWITCH - WALL MOUNTED AT 48" A.F.F. OR AS NOTED
- A LIGHT FIXTURE TYPE 'A'
- B LIGHT FIXTURE TYPE 'B'
- C LIGHT FIXTURE, WALL MOUNTED TYPE 'C'
- LIGHT FIXTURE ON EMERGENCY BRANCH CIRCUIT
- EXIT SIGN - WALL MOUNTED ABOVE DOOR OR AT 7'-6" A.F.F. UNLESS OTHERWISE NOTED
- Φ DUPLEX RECEPTACLE - MOUNTING AT 18" A.F.F.
- Φ TWO DUPLEX RECEPTACLES MOUNTED IN A 2-GANG BOX AT 18" A.F.F. UNLESS OTHERWISE NOTED
- Φ<sup>36"</sup> DUPLEX RECEPTACLE - INDICATES MOUNTING AT 36" A.F.F.
- Φ<sup>GFI</sup> DUPLEX RECEPTACLE - GROUND FAULT CIRCUIT INTERRUPTER (GFCI) TYPE
- Φ<sup>TV</sup> DUPLEX RECEPTACLE - MOUNTED AT 84" A.F.F. FOR TELEVISION - U.O.N.
- Φ<sup>GFI</sup> GFCI TYPE DUPLEX RECEPTACLE IN WEATHERPROOF ENCLOSURE
- USB USB RECEPTACLE WITH (4) FOUR USB OUTLETS ONLY - TO BE HUBBELL #USB4 OR EQUAL BY LEVITON
- Φ JUNCTION BOX - MOUNTING HEIGHT AND SIZE AS REQUIRED
- PANELBOARD - 0 TO 150 VOLTS TO GROUND
- PANELBOARD - 151 TO 600 VOLTS TO GROUND
- DISTRIBUTION PANEL - 151 TO 600 VOLTS TO GROUND
- ☑ TRANSFORMER
- 60/3 UNFUSED DISCONNECT SWITCH - "60/3" INDICATES 60 AMPERE SWITCH RATING AND POLES
- ☒ 60/3 50 FUSED DISCONNECT SWITCH - "60/3" INDICATES 60 AMPERE SWITCH RATING AND POLES / "50" INDICATES 50 AMPERE FUSE
- ▽ DATA OUTLET - MOUNTING AT 18" A.F.F. PROVIDE (1) CAT6 CABLE IN 3/4" CONDUIT BACK TO SERVER ROOM.
- SD FIRE ALARM DUCT SMOKE DETECTOR
- TS/FS SPRINKLER SYSTEM TAMPER SWITCH/FLOW SWITCH
- WP FIRE ALARM HORN WITH VISUAL STROBE LIGHT AND WEATHERPROOF HOUSING - MOUNTED AT 80" A.F.F.
- SD FIRE ALARM SMOKE DETECTOR, CEILING MOUNTED
- FACP FIRE ALARM CONTROL PANEL
- PP MUSHROOM HEAD PUSHBUTTON OPERATOR - MOUNTING AT 48" A.F.F.
- CR ACCESS CONTROL SYSTEM CARD READER - SEE TYPICAL SECURE DOOR DETAIL FOR SECURE DOOR REQUIREMENTS
- CLOSED CIRCUIT TELEVISION CAMERA FURNISHED BY LAKELAND CC - MOUNTING AT 80" A.F.F. PROVIDE 3/4" CONDUIT WITH CAT6 CABLE FROM SERVER ROOM TO LOCATIONS INDICATED.
- CLOSED CIRCUIT TELEVISION CAMERA FURNISHED BY LAKELAND CC - CEILING MOUNTED. PROVIDE 3/4" CONDUIT WITH CAT6 CABLE FROM SERVER ROOM TO LOCATIONS INDICATED.
- ⊕ WIRELESS ACCESS POINT PROVIDED BY LAKETRAN - PROVIDE (2) TWO CAT6 CABLES WITH 15' SERVICE LOOPS FROM SERVER ROOM TO LOCATION INDICATED.
- ◆ PLAN NOTE TAG, REFER TO PLANS FOR DESCRIPTION
- AH-3 INDICATES POWER CONNECTION TO AIR HANDLER #3-REFER TO EQUIPMENT CONNECTION SCHEDULES FOR REQUIREMENTS
- A.F.F. ABOVE FINISHED FLOOR
- WP WEATHERPROOF
- U.O.N. UNLESS OTHERWISE NOTED
- 60/3 ONE-LINE DIAGRAM REPRESENTATION OF A MOLDED CASE CIRCUIT BREAKER - "60/3" INDICATES 60 AMPERE CIRCUIT BREAKER RATING AND POLES
- ☐ ONE-LINE DIAGRAM REPRESENTATION OF A TRANSFORMER, SIZE AS NOTED
- ⊕ ONE-LINE DIAGRAM REPRESENTATION OF A METER



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**ELECTRICAL SYMBOLS, NOTES AND DIAGRAMS**

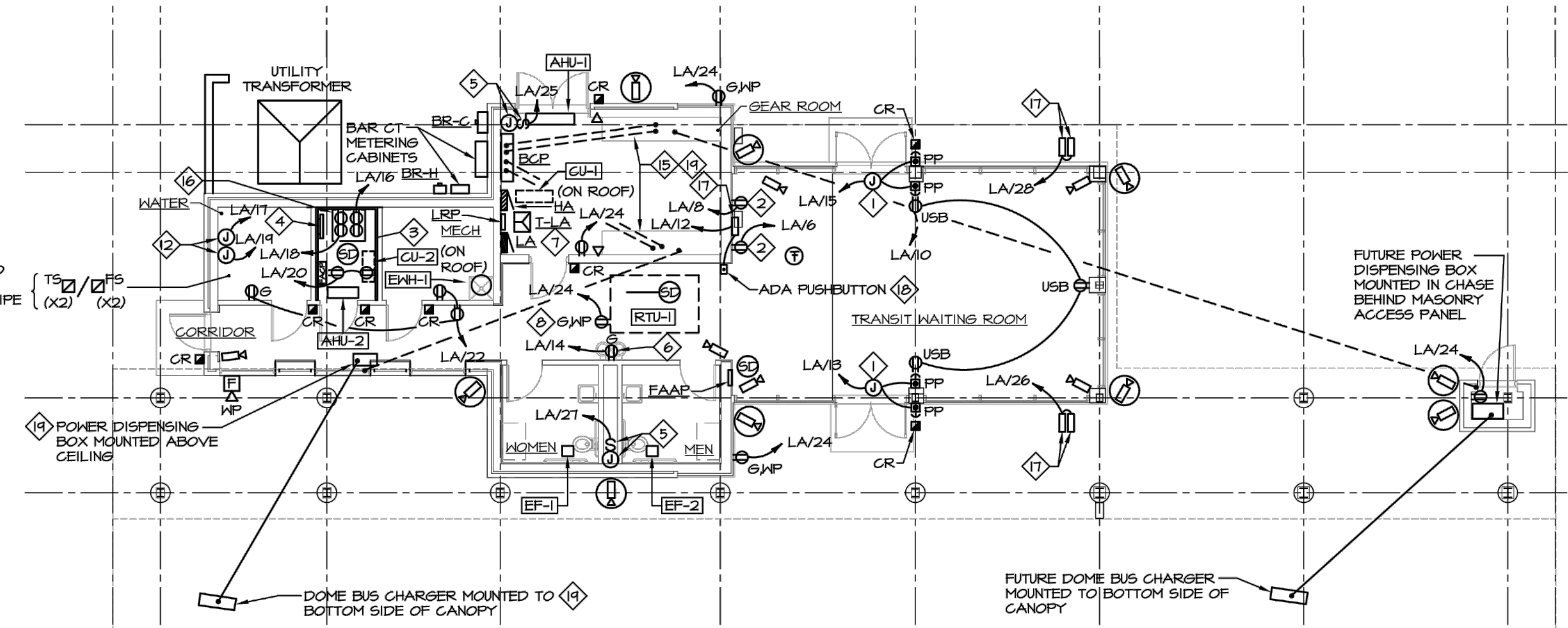
PROJECT NO.	18050002
DISCIPLINE	ELECTRICAL
SHEET NAME	E-1
SHEET	OF
52	55



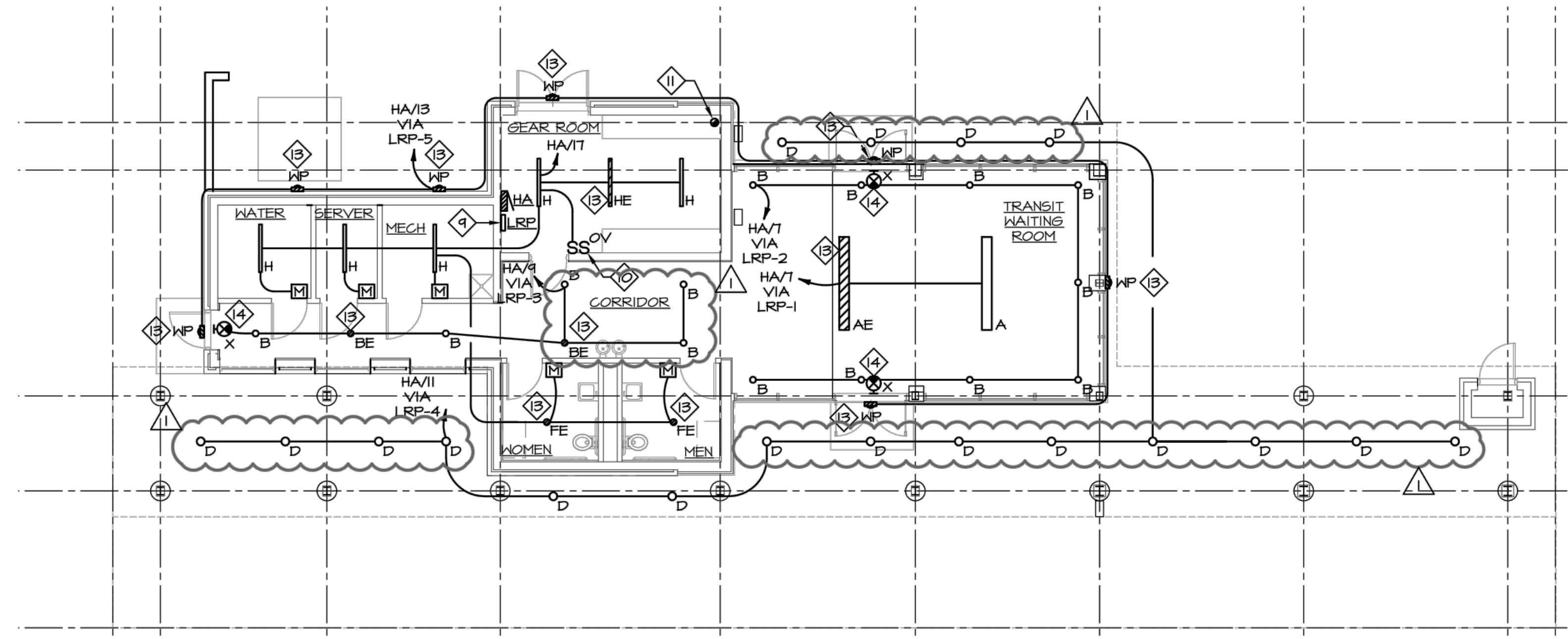
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PLAN NOTES

- NEW MOTORIZED DOORS WITH PUSH PAD CONTROLS BY G.C. - 120 VOLT, 1 PHASE. E.C. TO INSTALL ALL POWER AND CONTROL WIRING AND MOUNT PUSH PAD CONTROL STATIONS. ALL CONDUIT AND WIRING MUST BE CONCEALED. FIELD VERIFY ROUTING AND PUSH PAD LOCATIONS WITH OWNER/ARCHITECT PRIOR TO ROUGH-IN.
- VENDING MACHINE - 120V, 1.0KW ASSUMED.
- E.C. TO PROVIDE 8'x3/4"D TREATED PLYWOOD FOR TELE/DATA EQUIPMENT INSTALLED ON WALL OF I.T. ROOM.
- 12"x2"x1/4" CU GROUND BAR WITH INSULATED STAND-OFFS, AND #6 COPPER GROUND TO EXISTING BUILDING GROUNDING ELECTRODE SYSTEM.
- PROVIDE 120V POWER AND DISCONNECT FOR EXTERIOR MOUNTED LED BACKLIT SIGN. FINAL CONNECTION TO SIGN WILL BE BY SIGN INSTALLER. PROVIDE WEATHERPROOF JUNCTION BOX WITHIN 6' OF SIGN AT LOCATION COORDINATED WITH SIGN INSTALLER.
- ELECTRIC WATER COOLER - 120V, 1.0KW ASSUMED.
- TRANSFORMER SUSPENDED FROM STRUCTURE ABOVE.
- REFER TO ROOF RECEPTACLE DETAIL FOR MOUNTING REQUIREMENTS.
- LIGHTING CONTROL RELAY PANEL - TO BE WATTSTOPPER 8-RELAY PEANUT PANEL #LP85-8-G-15. EQUALS BY ACUITY CONTROLS, LEVITON. ALL LIGHTING CONTROLS TO BE PHOTOCELL ON, PHOTOCELL OFF, UNLESS OTHERWISE NOTED.
- PROVIDE LOW VOLTAGE LIGHTING OVERRIDE SWITCH (WATTSTOPPER #LVSW-100) TO CONTROL BUILDING LIGHTING CONTROL RELAY #1 IN 'LRP'.
- PROVIDE LOW VOLTAGE EXTERIOR PHOTOCELL MOUNTED HIGH AT A SUITABLE OUTSIDE LOCATION FOR LIGHTING RELAY PANEL - TO BE WATTSTOPPER #EM-24A2.
- PROVIDE 120V POWER FOR DRY PIPE SPRINKLER SYSTEM COMPRESSOR (120V, 1.0KW ASSUMED) AND LOW AIR PRESSURE SUPERVISORY PANEL (120V, 0.2KW ASSUMED).
- PROVIDE A SEPARATE HOT AHEAD OF ALL CONTROLS FOR EMERGENCY BATTERY OPERATION.
- WIRE EXIT SIGN AHEAD OF ALL LIGHTING CONTROLS.
- 500KH PROTERRA BATTERY CHARGING CABINET - SEE ONE LINE DIAGRAM AND STUB-UP LOCATION DETAIL ON DRAWING E-1 FOR ADDITIONAL DETAILS.
- PROVIDE WALL MOUNTED DATA RACK. ALL HEAD-END EQUIPMENT IN RACK IS TO BE PROVIDED BY LAKETRANS I.T. AND SECURITY VENDORS UNDER SEPARATE CONTRACTS.
- LED SCHEDULE SIGN - 120V, 0.5KW ASSUMED. PROVIDE (1) ONE CAT6 CABLE IN 3/4" CONDUIT FROM SIGN TO SERVER ROOM.
- ADA TYPE PUSHBUTTON FOR TOUCH TO SPEAK OPERATION OF SCHEDULE SIGN SPEAKER, MOUNTED AT 48" ABOVE FINISHED FLOOR.
- PROTERRA BATTERY CHARGING PANEL, POWER DISPENSING BOX AND DOME BUS CHARGER ARE TO BE PROVIDED BY PROTERRA, INSTALLED AND WIRED BY E.C. PROTERRA WILL SUPERVISE THE INSTALLATION AND PROVIDE EXACT LOCATIONS AND CONNECTIONS REQUIRED IN THE FIELD.



POWER AND COMMUNICATIONS PLAN  
SCALE: 1/8" = 1'-0"



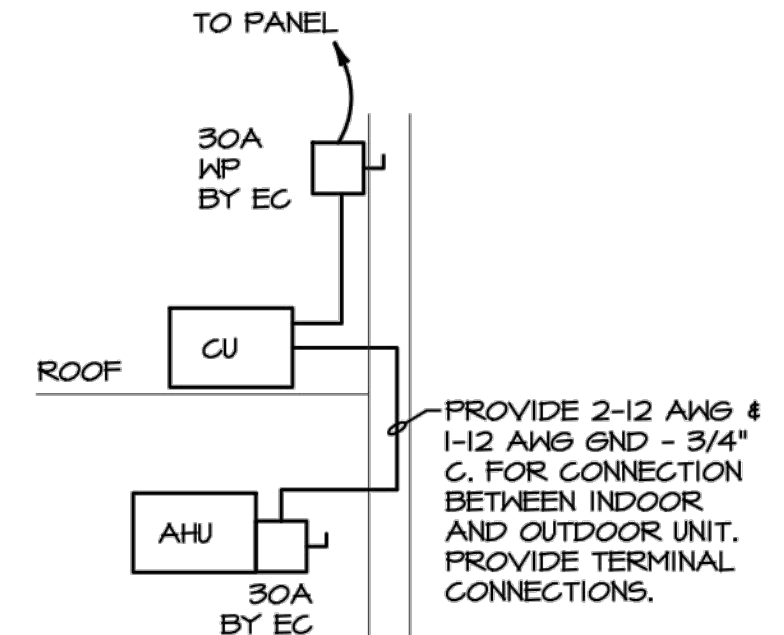
LIGHTING PLAN  
SCALE: 1/8" = 1'-0"

MECHANICAL EQUIPMENT WIRING SCHEDULE

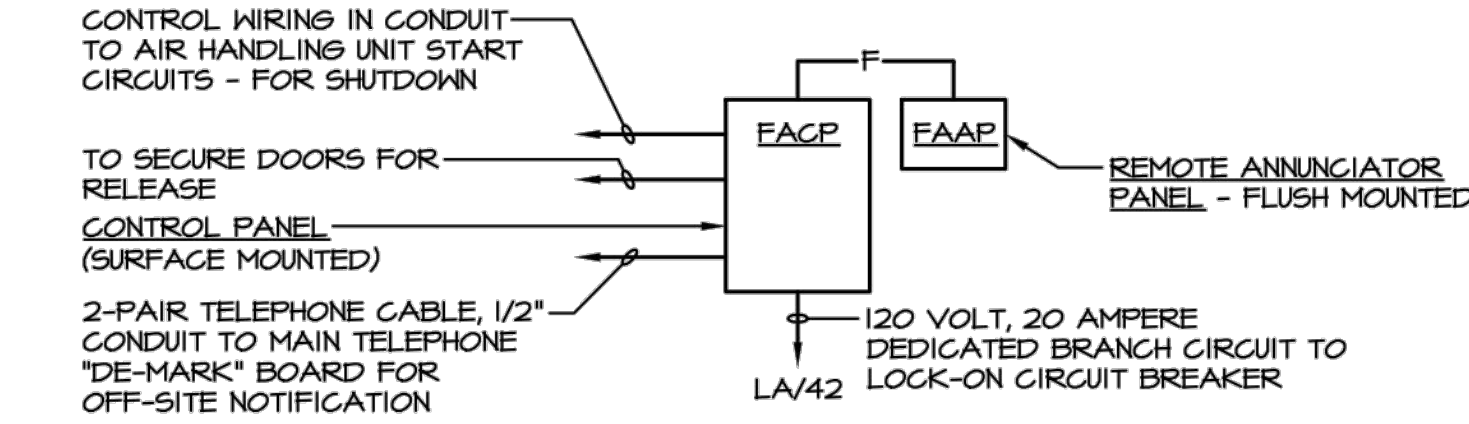
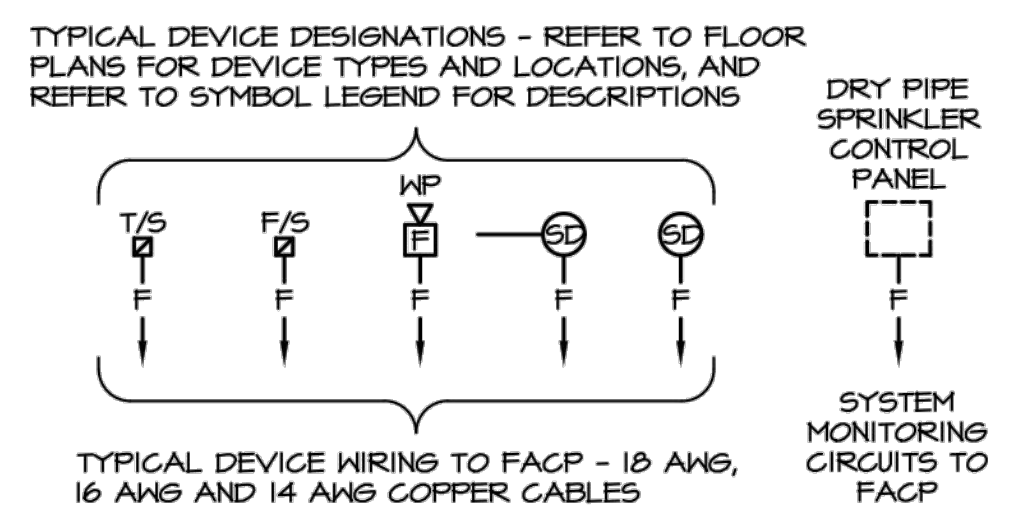
ITEM NO.	EQUIPMENT	HP	KW	FLA	VOLTS	Ø	CONNECTION BY EC	PANEL / CKT. NO.	CIRC BKR AMPS POLES	WIRING AND CONDUIT	NOTES
AHU-1 CU-1	SPLIT SYSTEM #1	-	3.0	-	208	1	②	LA / 13	20 2	2-12 AWG & 1-12 AWG GND - 3/4" C.	
AHU-2 CU-2	SPLIT SYSTEM #2	-	2.3	-	208	1	②	LA / 2,4	20 2	2-12 AWG & 1-12 AWG GND - 3/4" C.	
RTU-1	ROOFTOP UNIT #1	-	18.0	-	480	3	③	HA / 2,4,6	30 3	3-10 AWG & 1-10 AWG GND - 3/4" C.	
EF-1	EXHAUST FAN #1	FRAC	0.04	-	120	1	DC ⑤	LA / 7 ④	20	2-12 AWG & 1-12 AWG GND - 3/4" C.	
EF-2	EXHAUST FAN #2	FRAC	0.04	-	120	1	DC ⑤	LA / 7 ④	20	2-12 AWG & 1-12 AWG GND - 3/4" C.	
EW-H	ELECTRIC WATER HEATER #1	-	2.0	-	120	1	□ 30AS	LA / 5	25 1	2-10 AWG & 1-10 AWG GND - 3/4" C.	

SCHEDULE NOTES

- DUCT SMOKE DETECTOR MOUNTED BY MECHANICAL CONTRACTOR, FURNISHED AND WIRED BY ELECTRICAL CONTRACTOR.
- EQUIPMENT HAS A SINGLE POINT CONNECTION. SEE WIRING DIAGRAM AT RIGHT FOR ADDITIONAL WIRING REQUIREMENTS AND DETAILS.
- EQUIPMENT HAS A FACTORY DISCONNECT SWITCH.
- EQUIPMENT SHARES CIRCUIT WITH OTHER EQUIPMENT.
- PROVIDE AN INTERLOCKING RELAY TO CONTROL 120V EXHAUST FAN WITH 2TV LIGHTS THAT SERVE THE SPACE.

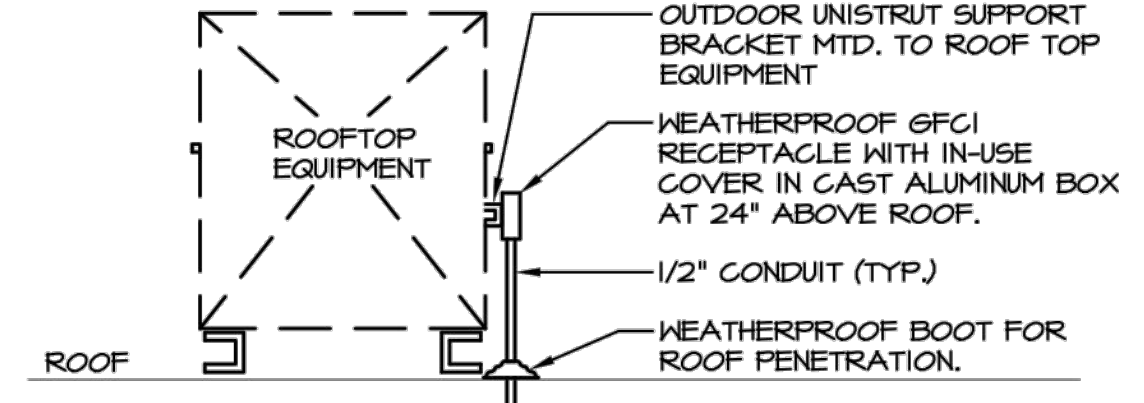


DUCTLESS SPLIT WIRING DIAGRAM  
NO SCALE



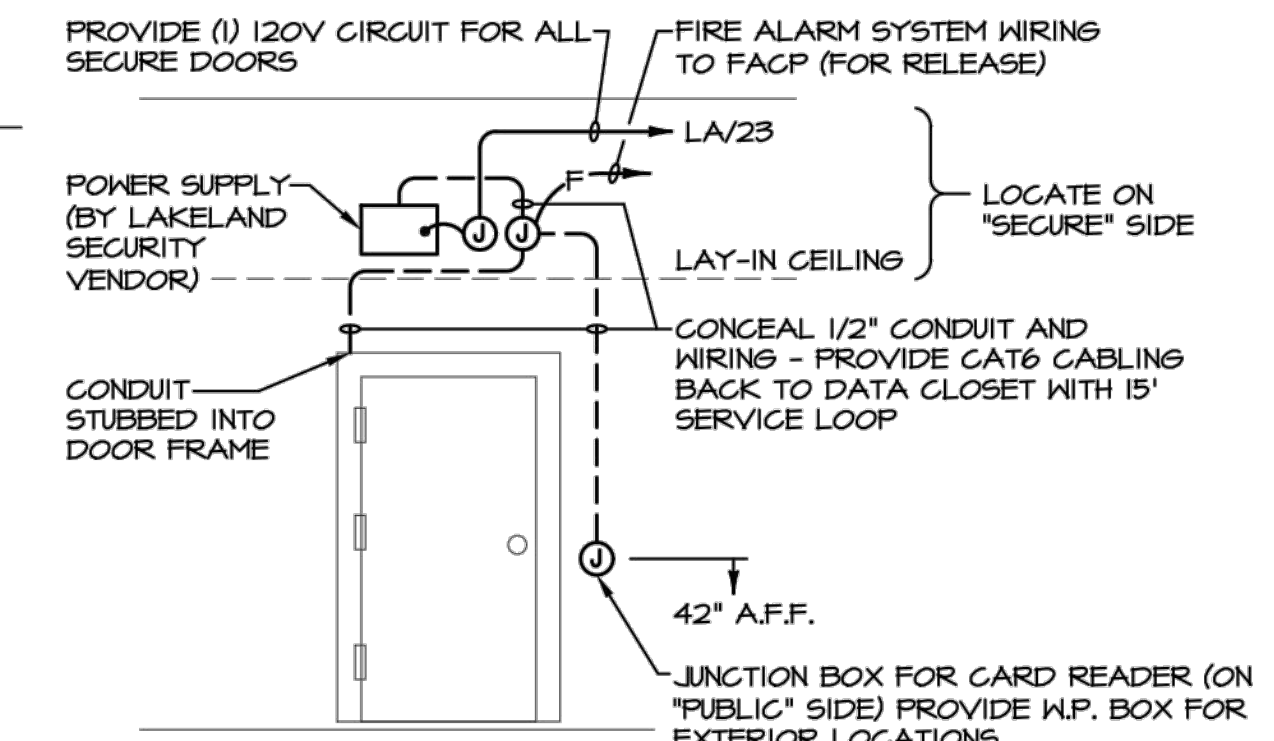
FIRE ALARM SYSTEM BLOCK DIAGRAM

- ALL 24VDC FIRE ALARM CABLE SHALL BE INSTALLED IN CONDUIT, OR SHALL BE FIRE ALARM/CONTROL TYPE MC CABLE (RED SHEATH). AT THE CONTRACTORS OPTION, PLENUM RATED CABLE MAY BE USED WITHOUT CONDUIT ONLY ABOVE ACCESSIBLE, LAY-IN CEILINGS, AND IN EXPOSED STRUCTURE AREAS ABOVE 12'-0" A.F.F.
- THE SYSTEM SUPPLIER SHALL DETERMINE THE SIZE, TYPE AND QUANTITY OF 24VDC CABLES FOR THE SYSTEM, AND SHALL FURNISH INSTALLATION FLOOR PLANS FOR REVIEW AND APPROVAL.
- VERIFY QUANTITY AND LOCATION OF SPRINKLER SYSTEM TAMPER AND FLOW SWITCHES WITH THE SPRINKLER SYSTEM CONTRACTOR.
- REFER TO THE SPECIFICATIONS FOR ADDITIONAL SYSTEM REQUIREMENTS. ALL POWER SUPPLIES AND BATTERIES SHALL HAVE A 25% SPARE (MINIMUM) CAPACITY FOR FUTURE DEVICES.



ROOF RECEPTACLE DETAIL  
NO SCALE

NOTES: 1) TYPICAL DETAIL FOR MOUNTING RECEPTACLE TO ROOFTOP MECHANICAL EQUIPMENT.



TYPICAL SECURE DOOR "CR" DETAIL  
NO SCALE

NOTE: VERIFY ALL JUNCTION BOX, CONDUIT, AND POWER REQUIREMENTS WITH LAKELAND COMMUNITY COLLEGE DOOR SECURITY VENDOR BEFORE ROUGH-IN. HID CARD READERS AND SECURE DOOR EQUIPMENT FURNISHED AND PROGRAMMED BY LAKELAND COMMUNITY COLLEGE VENDOR, INSTALLED AND WIRED BY E.C.

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			08/05/2019	AS SHOWN					

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ELECTRICAL SITE PLAN

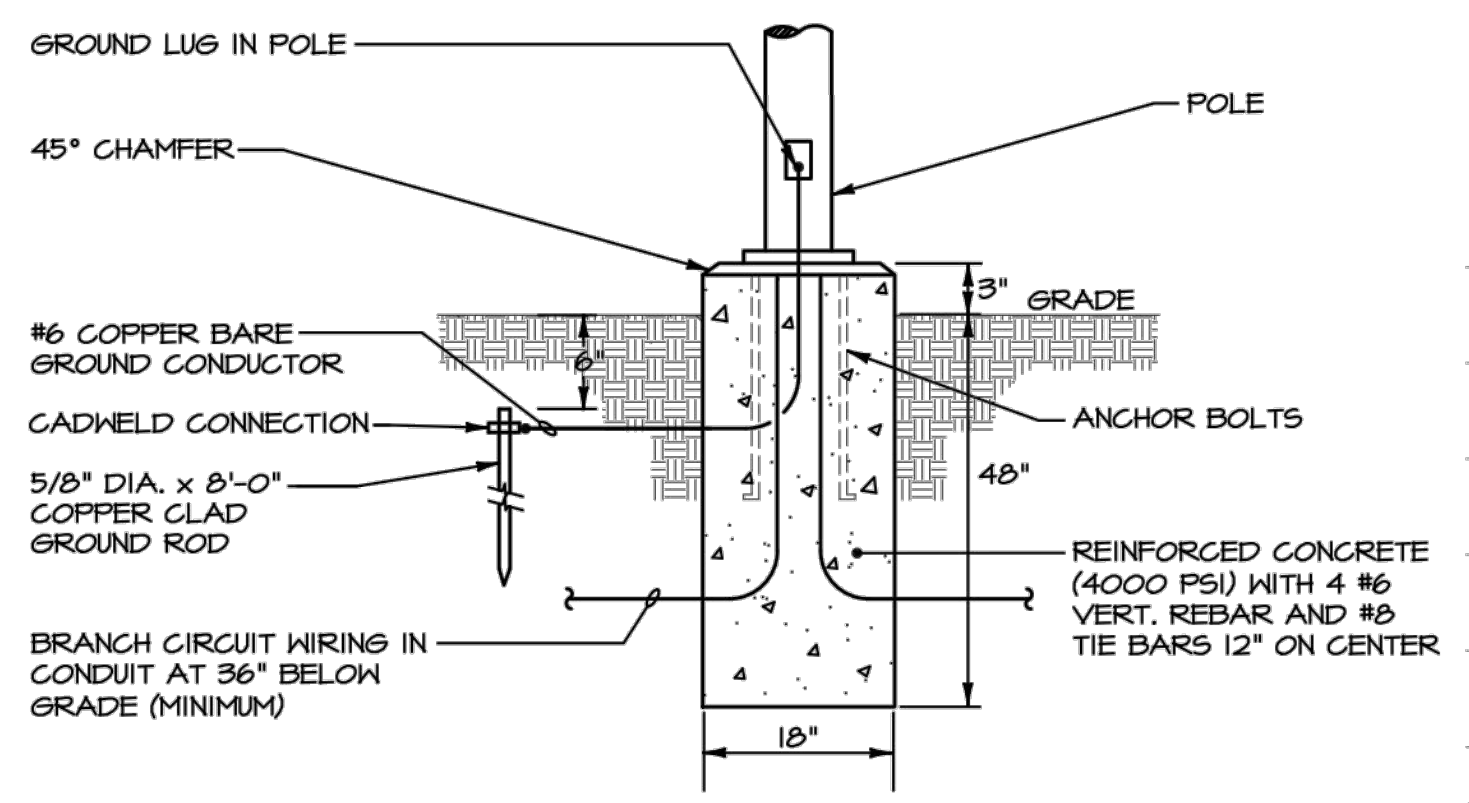
PROJECT NO.	18050002
DISCIPLINE	ELECTRICAL
SHEET NAME	E-3
SHEET	OF
54	55

GENERAL NOTES

- REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
- EXACT UNDERGROUND CONDUIT ROUTINGS TO BE DETERMINED IN THE FIELD TO BE COORDINATED WITH ALL OTHER UTILITIES.
- COORDINATE THE INSTALLATION OF ALL NEW LIGHT POLES AND BASES WITH SITE CIVIL CONTRACTOR. ALL UNDERGROUND WORK SHALL BE INSTALLED PRIOR TO PAVING. NO SAWCUTTING OR PATCHING AS A RESULT OF IMPROPER COORDINATION IS PERMITTED.
- THE NEW POLES SHALL BE FURNISHED WITH WIRELESS NETWORK NODES INSTALLED AND ACTIVATED, HOWEVER, THE METHOD OF CONTROL WILL BE FROM THE LIGHTING RELAY PANEL. THE OWNER WILL CONTRACT WITH SIEMENS LIGHTING CONTROL AT A LATER DATE TO PROGRAM AND SETUP THE WIRELESS NETWORK SYSTEM.

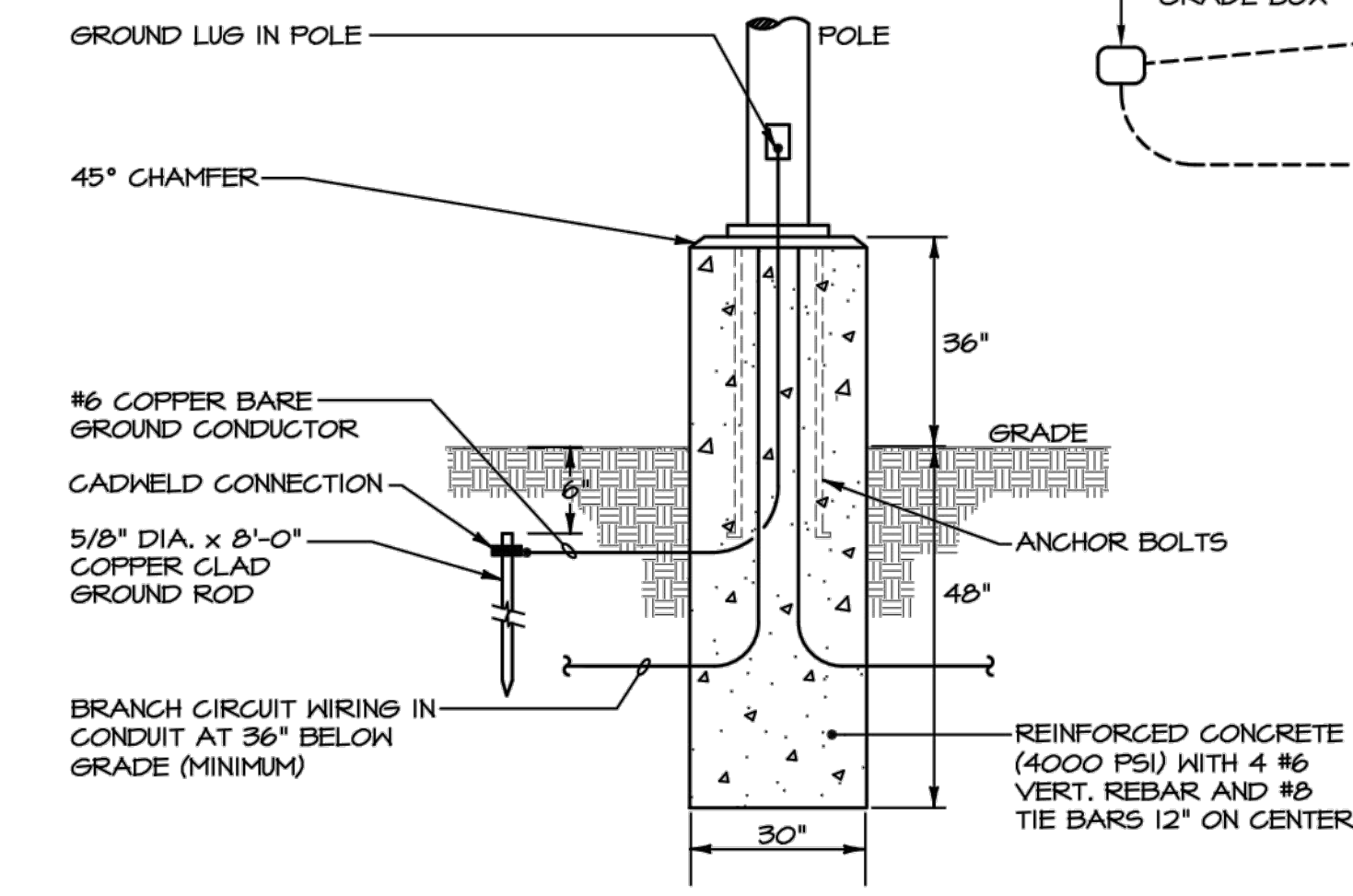
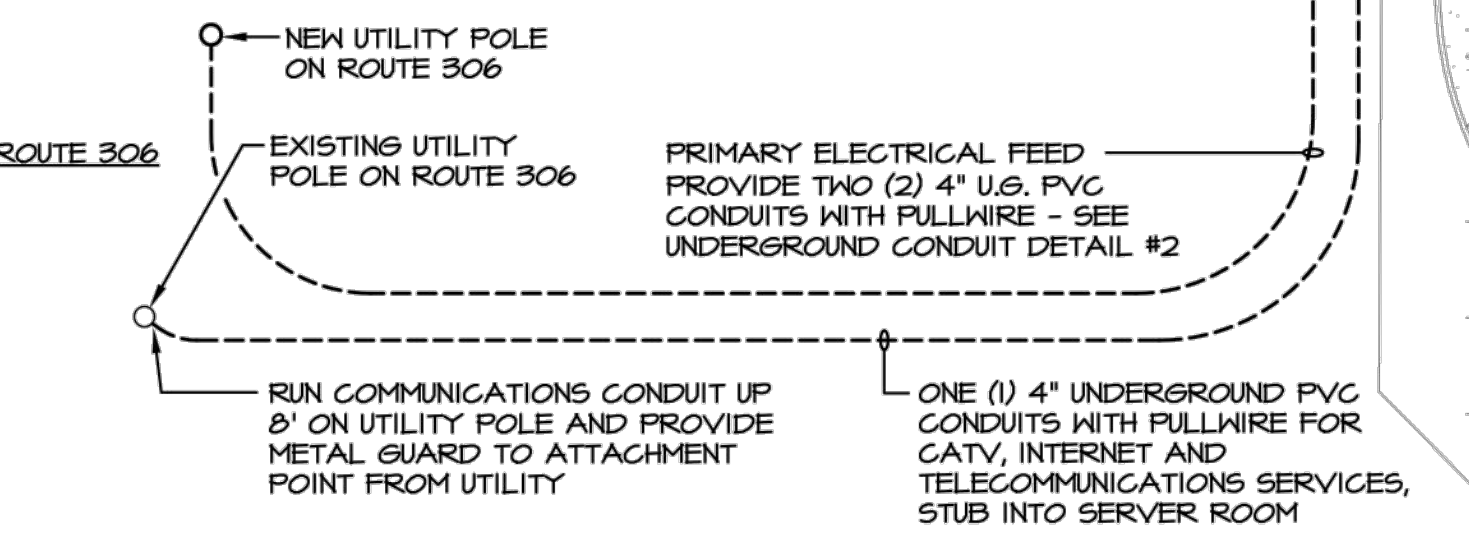
PLAN NOTES

- INTERNALLY ILLUMINATED MONUMENT SIGN - 120V, 1 PHASE, 0.5KW ASSUMED. PROVIDE 30 AMPERE UN-FUSED WEATHERPROOF DISCONNECT. WIRE THROUGH LIGHTING RELAY PANEL TO 20/1 BRANCH CIRCUIT BREAKER INDICATED. PROVIDE 2-8 AWG & 1-10 AWG GND - 1 1/2" UNDERGROUND PVC CONDUIT. RELAY CONTROL IS TO BE PHOTOCELL ON, PHOTOCELL OFF.
- PROVIDE (3) THREE 1" PVC CONDUITS WITH FULLWIRE WITH CONDUIT STUBBED FROM BELOW TO 1" UNDER COVER (AND CAP) OF IN-GRADE 8"X8"X12"D FULLBOX (WITH TIER 15 LOAD RATINGS) FOR SIGNAL LIGHT WITH LABEL "ELECTRIC" - TO BE QUARTZITE #PC0808BB12 / PC0808HS00IT OR EQUAL. SEE UNDERGROUND CONDUIT DETAIL #1. STUB, CAP AND LABEL CONDUIT ADJACENT TO MAIN DISTRIBUTION PANEL 'BCP.'
- EXISTING CATV IN-GRADE BOX AND RELATED CONDUIT AND WIRING TO BE REMOVED AND RELOCATED. EXTEND CONDUIT AND CATV CABLING TO NEW LOCATION INDICATED.
- PROVIDE 2-10 AWG & 1-10 AWG GND - 3/4" UNDERGROUND PVC CONDUIT.
- EXISTING LIGHTING POLE TO BE REMOVED. REMOVE EXISTING LIGHT, INSTALL NEW GRADE BOX AND MAINTAIN BRANCH CIRCUIT WIRING FOR DOWNSTREAM LIGHTING FIXTURES TO REMAIN.



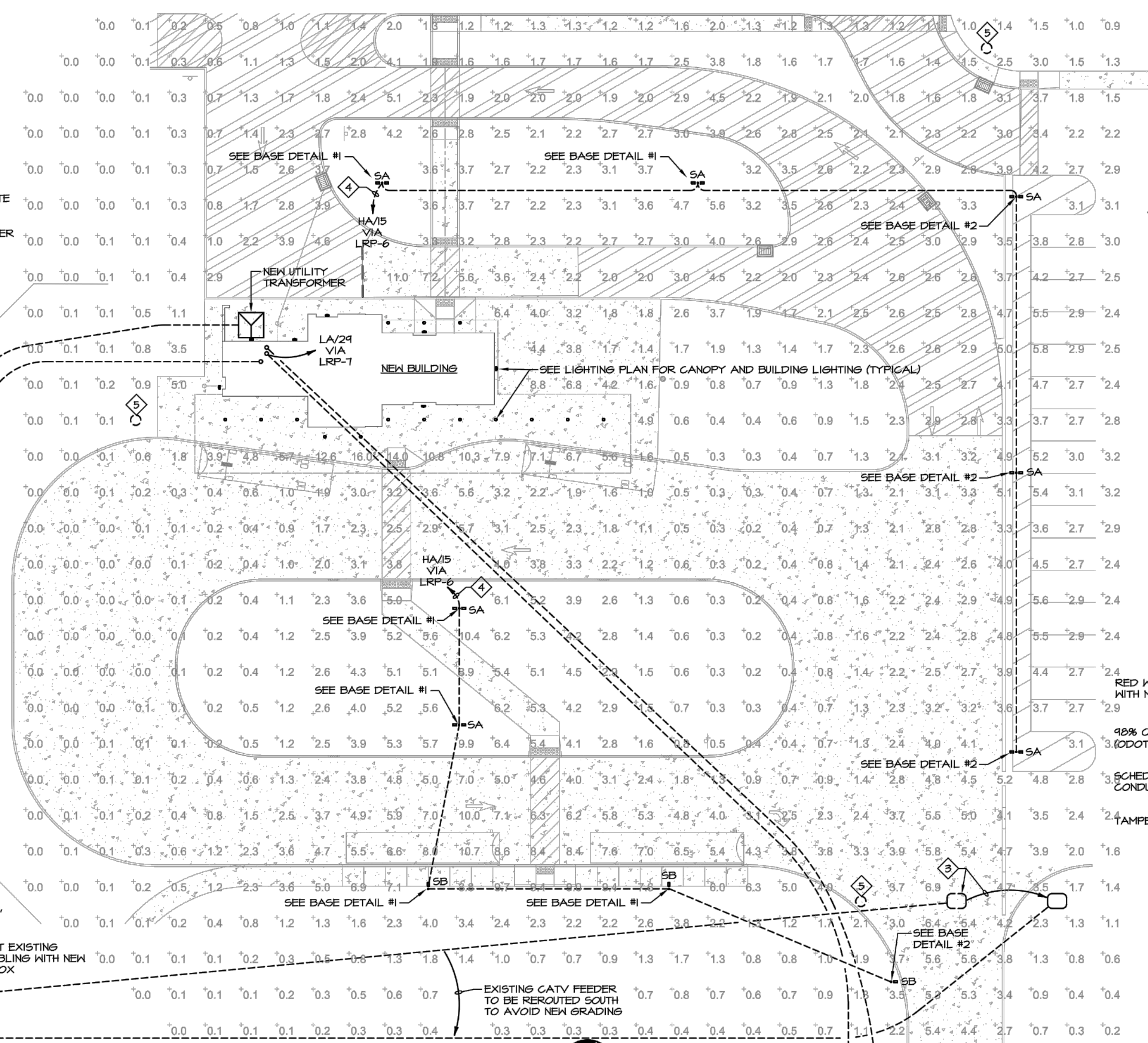
FLUSH MOUNTED LIGHTING POLE BASE - DETAIL #1  
NO SCALE

NOTE: POSITION EDGE OF BASE AT 12" MINIMUM FROM ADJACENT SIDEWALK.



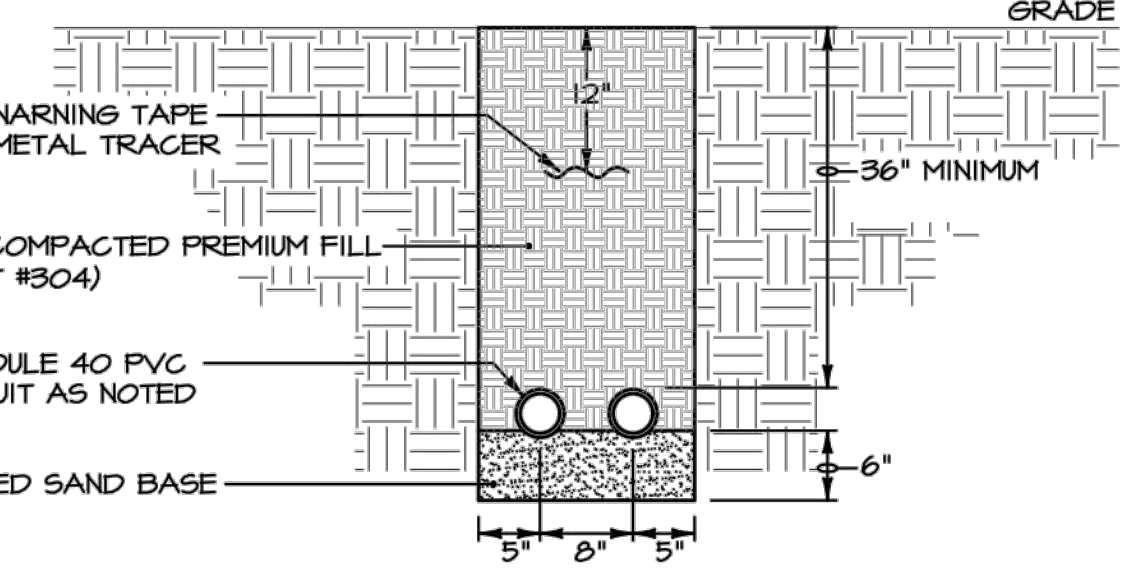
LIGHTING POLE BASE - DETAIL #2  
NO SCALE

NOTE: POSITION EDGE OF BASE AT 24" MINIMUM FROM ADJACENT CURB. POLE IS OVER-SIZED TO RESIST HEAVY TRAFFIC AND SNOW FLOWS.



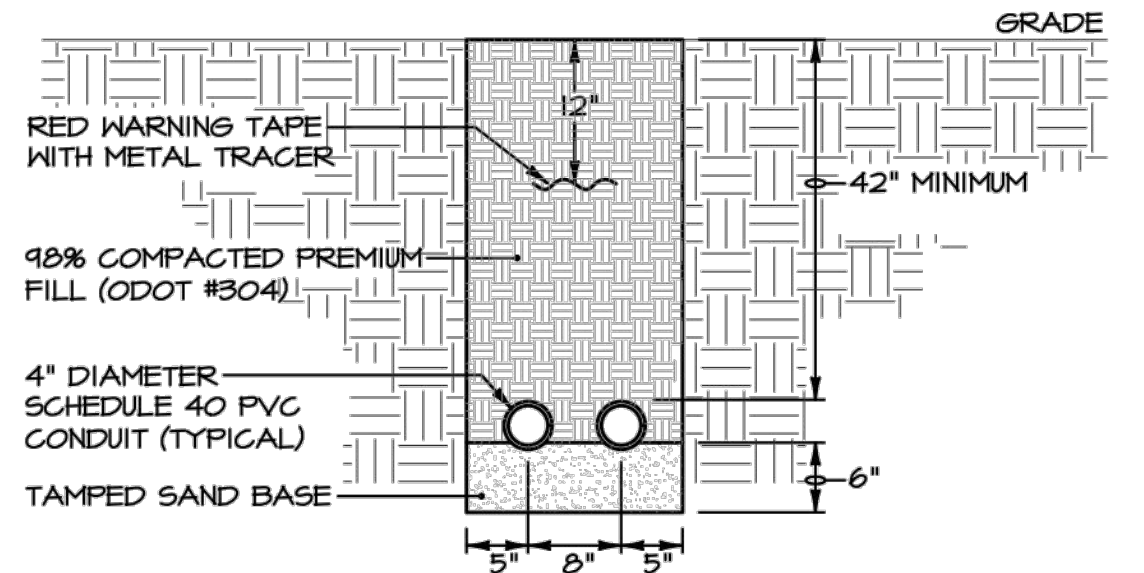
ELECTRICAL SITE PLAN  
SCALE: 1" = 20'-0"

LUMINAIRE SCHEDULE								
TYPE	LUMINAIRE WATTS	VOLTS	LAMP TYPE	DESCRIPTION	MOUNTING	MANUFACTURER	CATALOG NUMBER	REMARKS
A	60	277	LED 4000K 8000 LUMENS	CABLE SUSPENDED 8' LONG LED DIRECT/INDIRECT LINEAR FIXTURE WITH DUST COVER AND FINISH TO BE SELECTED BY ARCHITECT.	SUSPENDED AT 11'-0" A.F.F.	CORELITE	DSI-WS-40L840-1D-UNV-STD-DC-FINISH-A-C48-T1-8	
AE	60	277	LED 4000K 8000 LUMENS	SAME AS TYPE 'A', EXCEPT WITH INTEGRAL BATTERY BACKUP.	SUSPENDED AT 11'-0" A.F.F.	CORELITE	DSI-WS-40L840-1D-UNV-STD-EL-14W-DC-FINISH-A-C48-T1-8	
B	28	277	LED 4000K 3000 LUMENS	6" DIAMETER LED DOWNLIGHT WITH NARROW DISTRIBUTION OPTICS, SPECULAR CLEAR REFLECTOR AND INTEGRAL 0-10V DIMMING DRIVER.	RECESSED	PORTFOLIO	LD68-30-D010 / EL68-3050-80-40 / 6LB-N-1-LI	
BE	28	277	LED 4000K 3000 LUMENS	SAME AS TYPE 'B', EXCEPT WITH INTEGRAL BATTERY BACKUP.	RECESSED	PORTFOLIO	LD68-30-D010-EM14 / EL68-3050-80-40 / 6LB-N-1-LI	
D	27	277	LED 4000K 3000 LUMENS	8" DIAMETER LED DOWNLIGHT WITH SPECULAR CLEAR REFLECTOR AND INTEGRAL 0-10V DIMMING DRIVER.	RECESSED	PORTFOLIO	LD68-30-D010 / ER8-3040-8040 / 8LB-M-1-LI	
FE	28	277	LED 4000K 3000 LUMENS	6" DIAMETER LED DOWNLIGHT WITH MEDIUM DISTRIBUTION OPTICS, SPECULAR CLEAR REFLECTOR, INTEGRAL BATTERY BACKUP AND INTEGRAL 0-10V DIMMING DRIVER.	RECESSED	PORTFOLIO	LD68-30-D010-EM14 / EL68-3050-80-40 / 6LB-M-1-LI	
H	31	277	LED 4000K 4269 LUMENS	CHAIN SUSPENDED 4' LONG LENSED LED STRIPLIGHT.	SUSPENDED AT 10'-0" A.F.F.	METALUX	4SLED-LD5-41SL-LW-UNV-L840-CDI-AYC-CHAINSET	
HE	31	277	LED 4000K 4269 LUMENS	SAME AS TYPE 'H', EXCEPT WITH INTEGRAL BATTERY BACKUP.	SUSPENDED AT 10'-0" A.F.F.	METALUX	4SLED-LD5-41SL-LW-UNV-EL14W-L840-CDI-AYC-CHAINSET	
SA	226	277	LED 4000K	SITE LED POLE WITH 2 HEADS AT 180 DEGREES. TYPE 'N' WIDE DISTRIBUTION. 18'-0" ALUMINUM ROUND TAPERED POLE. BRONZE FINISHES.	18'-0" POLE	MCGRAW EDISON HAPOO	GLEON-AF-02-E1-T4W-BZ RTA SERIES POLE	
SB	166	277	LED 4000K	SAME AS TYPE 'SA', EXCEPT WITH SINGLE HEAD. TYPE 'II' DISTRIBUTION AND HIGHER LUMEN PACKAGE.	18'-0" POLE	MCGRAW EDISON HAPOO	GLEON-AF-03-E1-T2-BZ RTA SERIES POLE	
WP	49	277	LED 4000K 4313 LUMENS	LED WALL PACK WITH INTEGRAL COLD WEATHER BATTERY BACKUP. FINISH TO BE SELECTED BY ARCHITECT.	WALL AT 9'-0" A.F.F.	MCGRAW EDISON	ENC-F02-LED-27V-BL4-FINISH-CWB	
X	1	277	LED	LED EDGE-LIT EXIT SIGN WITH RED LETTERING AND INTEGRAL BATTERY BACKUP. SELF DIAGNOSTICS.	WALL ABOVE DOOR	SURE-LITES	EUX7-1-R-SD	



TYPICAL UNDERGROUND CONDUIT DETAIL #1 - NON ENCASED  
NO SCALE

DETAIL #1 NOTE:  
1) THIS TYPICAL DETAIL APPLIES TO ALL UNDERGROUND CONDUIT ROUTING UNLESS OTHERWISE NOTED.



UNDERGROUND CONDUIT DETAIL #2 - NON ENCASED  
NO SCALE

DETAIL #2 NOTE:  
1) PROVIDE 6" CONCRETE COVER WHEN ROUTED BELOW DRIVES AND PARKING AREAS.

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SECTION 280000 - ELECTRICAL SPECIFICATIONS

PART 1 GENERAL

1.1 PROVIDE ALL LABOR AND MATERIAL FOR ALL SYSTEMS AS INDICATED ON THE DRAWINGS AND SPECIFIED HEREIN, OR REASONABLY IMPLIED, TESTED AND READY FOR USE BY THE OWNER.

1.2 REFER TO THE ARCHITECTURAL, STRUCTURAL, MECHANICAL AND OTHER CONTRACT DOCUMENTS FOR THE PROJECT. ELECTRICAL WORK AND/OR COORDINATION ITEMS INDICATED ON THESE DOCUMENTS ARE A PART OF THE ELECTRICAL SCOPE OF WORK.

1.3 DISCREPANCIES BETWEEN EACH DIVISION'S DOCUMENTS OR BETWEEN THE DOCUMENTS AND THE EXISTING BUILDING OR SITE CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE BEFORE SUBMITTING A BID.

1.4 THE ELECTRICAL SCOPE OF WORK INCLUDES, BUT IS NOT LIMITED TO THE FOLLOWING EQUIPMENT OR SYSTEMS:

- A. LIGHTING AND LIGHTING CONTROLS
- B. WIRING DEVICES
- C. POWER DISTRIBUTION EQUIPMENT
- D. BRANCH CIRCUIT PANELBOARDS
- E. UTILITY SERVICE INSTALLATION DRAWINGS
- F. FIRE DETECTION AND ALARM SYSTEM
- G. SECURITY SYSTEM
- H. PROTERRA BUS CHARGING SYSTEM
- I. GROUNDING AND GROUNDING SYSTEMS
- J. NEW POWER AND COMMUNICATIONS UTILITY SERVICES
- K. CONNECTIONS AND POWER CIRCUITS FOR EQUIPMENT PROVIDED UNDER ANOTHER DIVISION, OR BY THE OWNER.

1.5 SUBMITTALS, OR SHOP DRAWINGS ARE REQUIRED FOR THE FOLLOWING EQUIPMENT OR SYSTEMS:

- A. LIGHTING AND LIGHTING CONTROLS
- B. WIRING DEVICES
- C. POWER DISTRIBUTION EQUIPMENT
- D. BRANCH CIRCUIT PANELBOARDS
- E. UTILITY SERVICE INSTALLATION DRAWINGS
- F. FIRE DETECTION AND ALARM SYSTEM
- G. PROVIDE SUBMITTALS ONLY FOR EQUIPMENT LISTED ABOVE. ALL SUBMITTALS MUST BE REVIEWED FOR PROPER CONTENT AND ACCURACY BY THE CONTRACTOR BEFORE SUBMISSION TO THE ENGINEER.
- H. SUBMITTALS SHALL BE REVIEWED ONLY FOR GENERAL COMPLIANCE AND NOT FOR DIMENSIONS, QUANTITIES, ETC. THE SUBMITTALS THAT ARE RETURNED SHALL BE USED FOR PROCUREMENT. THE RESPONSIBILITY OF CORRECT PROCUREMENT REMAINS SOLELY WITH THE CONTRACTOR. THE SUBMITTAL REVIEW SHALL NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY FOR ERRORS OR OMISSIONS AND DEVIATIONS FROM THE CONTRACT REQUIREMENTS. ELECTRONIC COPIES ARE REQUIRED. REFER TO DIVISION 1 FOR EXACT QUANTITIES AND OTHER SUBMITTAL REQUIREMENTS.

1.6 RECORD DRAWINGS AND OPERATION AND MAINTENANCE MANUALS ARE REQUIRED TO BE SUBMITTED TO THE OWNER'S REPRESENTATIVE AND APPROVED BEFORE A FINAL CONTRACT PAY REQUEST. RECORD DRAWINGS INCLUDE A CLEAN SET OF CONTRACT DRAWINGS IDENTIFYING CHANGES OR DEVIATIONS MADE TO THE ORIGINAL DESIGN, AND MUST INCLUDE FEEDER ROUTINGS. OPERATION AND MAINTENANCE MANUALS (3 SETS) SHALL INCLUDE A COPY OF ALL APPROVED SUBMITTALS, EQUIPMENT MAINTENANCE INSTRUCTIONS, TEST REPORTS, INSPECTION REPORTS, EQUIPMENT WARRANTIES, AND THE CONTRACTORS' ONE-YEAR WARRANTY ON EQUIPMENT AND LABOR. REFER TO DIVISION 1 FOR EXACT QUANTITIES AND OTHER SUBMITTAL REQUIREMENTS.

1.7 OBTAIN AND PAY FOR LOCAL PERMITS, LICENSES AND INSPECTION FEES NECESSARY FOR THE WORK. PERMANENT AND TEMPORARY UTILITY SERVICE INSTALLATION CHARGES ARE NOT INCLUDED IN THE BASE-BID WORK; SUCH CHARGES ARE INCLUDED AS AN ALLOWANCE OF \$10,000 IN THE CONTRACT. THE UN-USED PORTION OF THIS ALLOWANCE SHALL BE RETURNED TO THE OWNER AT THE COMPLETION OF THE PROJECT. THIS CONTRACTOR IS RESPONSIBLE FOR CONTACTS WITH UTILITY COMPANIES, AND FOR ARRANGEMENT OF WORK ORDERS.

1.8 SUBMISSION OF A BID ASSUMES KNOWLEDGE OF ALL DOCUMENTS AVAILABLE RELATED TO THE WORK, AS WELL AS EXISTING CONDITIONS MADE AVAILABLE FOR REVIEW AND INSPECTION DURING THE BIDDING PERIOD. THIS CONTRACTOR SHALL INFORM THE OWNER'S REPRESENTATIVE OF ANY UNKNOWN AND/OR CONCEALED CONDITIONS AFFECTING THE NEW WORK, AS THEY ARE DISCOVERED.

1.9 WHEREVER THE WORD "PROVIDE" IS USED, IT SHALL MEAN: FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR.

1.10 THE ELECTRIC SERVICE, THE ELECTRICAL DISTRIBUTION SYSTEM AND ALL NON-CURRENT CARRYING METAL PARTS OF THE ELECTRICAL SYSTEM SHALL BE GROUNDED IN ACCORDANCE WITH ARTICLE 250 OF THE NATIONAL ELECTRICAL CODE, AND ALL OTHER APPLICABLE CODES AND STANDARDS. ALL BRANCH CIRCUITS AND FEEDERS SHALL BE GROUNDED BY MEANS OF AN INSULATED GROUNDING CONDUCTOR INSTALLED WITHIN EACH RACEWAY. THE ENTIRE GROUNDING SYSTEM SHALL BE TESTED FOR CONTINUITY AT THE COMPLETION OF THE WORK.

1.11 THE NEW MATERIAL AND LABOR SHALL BE GUARANTEED FOR A PERIOD OF ONE YEAR FROM THE ACCEPTANCE BY THE OWNERS' REPRESENTATIVE. NOTE THAT CERTAIN SPECIFIED ITEMS OF EQUIPMENT MAY CARRY A LONGER PERIOD OF WARRANTY.

1.12 PROVIDE A PERMANENT NAMEPLATE OR PLAQUE TO IDENTIFY THE MAXIMUM FAULT CURRENT AMPERES AVAILABLE AT THE MAIN SERVICE DISCONNECTING MEANS, IN ACCORDANCE WITH NATIONAL ELECTRICAL CODE ARTICLE 110.

PART 2 PRODUCTS

2.1 ALL MATERIAL, EQUIPMENT INSTALLATION AND LABOR SHALL BE IN ACCORDANCE WITH THE LATEST APPLICABLE NATIONAL, STATE AND LOCAL CODES AND NFPA PUBLICATIONS, AS INTERPRETED BY THE AUTHORITY HAVING JURISDICTION. THIS CONTRACTOR MUST ADHERE TO PROPER INSTALLATION TECHNIQUES IN ACCORDANCE WITH INDUSTRY STANDARDS AS DEFINED BY ANSI AND NECA. IN ADDITION, OSHA REQUIREMENTS AND ANY SITE SPECIFIC SAFETY STANDARDS SHALL BE FOLLOWED FOR SAFETY OF PERSONNEL ON SITE. NEW EQUIPMENT SHALL BE UL AND/OR CSA LISTED.

2.2 WIRING DEVICES SHALL BE "SPECIFICATION GRADE" AND SHALL BE OF ONE MANUFACTURER, WITH MATCHING PLASTIC PLATES. HUBBELL DEVICES ARE LISTED; LEVITON AND PASS & SEYMOUR DEVICES WITH EQUAL SPECIFICATIONS MAY BE SUPPLIED. IVORY DEVICES AND PLATES SHALL BE PROVIDED, UNLESS OTHERWISE REQUESTED. THE OWNERS' REPRESENTATIVE WILL CONFIRM COLORS OF DEVICES AND PLATES DURING THE SUBMITTAL APPROVAL PROCESS. UNLESS NOTED OTHERWISE, STANDARD DEVICES SHALL BE:

- A. LIGHT SWITCHES: 120/277 VOLT, QUIET TYPE, HUBBELL #1221 (SINGLE POLE), #1223 (THREE-WAY) AND #1224 (FOUR-WAY).
- B. GENERAL PURPOSE RECEPTACLES: 125 VOLT, 20 AMPERE, 2-POLE, 3-WIRE, DUPLEX TYPE, NEMA 5-20R, HUBBELL #5362.
- C. GFCI RECEPTACLES: 125 VOLT, 20 AMPERE, 2-POLE, 3-WIRE DUPLEX TYPE, NEMA 5-20R, HUBBELL #GFR-5362, SELF-TESTING AND FEED-THRU TYPE CAPABLE OF PROTECTING DOWNSTREAM CIRCUIT DEVICES.

- D. TAMPER RESISTANT RECEPTACLES: 125 VOLT, 20 AMPERE, 2-POLE, 3-WIRE DUPLEX TYPE, NEMA 5-20R, HUBBELL #BR20-TR SERIES.
- E. EXTERIOR RECEPTACLES: PROVIDE A GFCI RECEPTACLE WITH A TAYMAC #MX4380S, METAL EXTRA DUTY "IN-USE" COVER AND HORIZONTAL MOUNTED BOX.
- F. OTHER SPECIAL PURPOSE DEVICES MAY BE SPECIFIED ON THE PLANS. THESE INCLUDE FLOOR OUTLETS AND SURFACE RACEWAY SYSTEMS.
- G. LINE-VOLTAGE WALL OCCUPANCY SENSORS: WATTSTOPPER #DW-100 SERIES, DUAL TECHNOLOGY, 120/277 VOLT, 800W/1200W RATED, WITH ON/OFF BUTTON. SENSOR SWITCH TYPE WSD-PDT IS CONSIDERED AN EQUIVALENT.
- H. WIRING DEVICES SHALL BE PROVIDED WITH A GROUNDED WIRE CONNECTED TO THE DEVICE AND/OR THE OUTLET BOX.

2.3 ALL WIRING SHALL BE COPPER, 90 DEGREE C. RATED, TYPE THHN, THWN OR XHHW, WITH 600-VOLT INSULATION UNLESS INDICATED OTHERWISE ON THE DRAWINGS. THE MINIMUM WIRE SIZE IS #12 FOR 120 AND 277 VOLT BRANCH CIRCUITS, #10 SHALL BE USED FOR CIRCUIT LENGTHS GREATER THAN 150 FEET.

- A. FOR NEW DISTRIBUTION SYSTEMS, COLOR CODE BRANCH CIRCUIT AND FEEDER CONDUCTORS AS FOLLOWS:
  1. 208Y/120 VOLT, 3 PHASE, 4 WIRE SYSTEM
    - A. PHASE A-BLACK
    - B. PHASE B-RED
    - C. PHASE C-BLUE
    - D. NEUTRAL-WHITE
    - E. GROUND-GREEN
  2. 480Y/277 VOLT, 3 PHASE, 4 WIRE SYSTEM
    - A. PHASE A-BROWN
    - B. PHASE B-ORANGE
    - C. PHASE C-YELLOW
    - D. NEUTRAL-WHITE WITH TRACER
    - E. GROUND-GREEN
  3. IN ADDITION TO THESE REQUIREMENTS, ALSO PROVIDE COLOR CODING OF CONDUCTORS AT ALL JUNCTION OR PULLBOXES.

2.4 ALL WIRING SHALL BE INSTALLED IN CONDUIT, AS PERMITTED BY THE NATIONAL ELECTRICAL CODE. AT THE CONTRACTOR'S OPTION, AND AS PERMITTED BY THE NATIONAL ELECTRICAL CODE, TYPE MC CABLE, OR A MANUFACTURED WIRING SYSTEM MAY BE USED FOR 20 AMPERE AND 30 AMPERE BRANCH CIRCUITS IN STUD WALLS AND ABOVE ACCESSIBLE LAY-IN CEILING OF CONDUIT AND WIRE. HOMERUNS TO PANELS SHALL BE IN CONDUIT. PVC CONDUIT MAY BE USED FOR EXTERIOR UNDERGROUND CIRCUITS AND FOR INTERIOR CIRCUITS AND FEEDERS LOCATED UNDER THE GROUND FLOOR SLAB. FLEXIBLE CONDUIT SHALL BE USED FOR CONNECTIONS TO MOTORS, EQUIPMENT, TRANSFORMERS, LIGHTING FIXTURES, AND FOR BRANCH CIRCUIT WIRING INSTALLED IN CASEWORK. EXPOSED CONDUIT IN HIGH TRAFFIC AREAS SHALL BE RIGID GALVANIZED OR IMC, FROM THE FLOOR TO A LEVEL OF 8'-0" ABOVE THE FLOOR.

2.5 LIGHTING FIXTURES AND ASSOCIATED BALLASTS AND TRANSFORMERS, AND LIGHTING CONTROLS SHALL BE AS INDICATED ON THE DRAWINGS, COMPLETE WITH PROPER LAMPS, ACCESSORIES AND SUPPORTS AS RECOMMENDED BY THE MANUFACTURER AND IN ACCORDANCE WITH NATIONAL ELECTRICAL CODE, ARTICLES 410 AND 411, OR ANY LOCAL CODES THAT MAY APPLY.

2.6 SWITCHBOARDS, PANELBOARDS, TRANSFORMERS, DISCONNECTS, AND OTHER POWER DISTRIBUTION EQUIPMENT SHALL BE PROVIDED FROM ONE MANUFACTURER WHEREVER POSSIBLE. APPROVED MANUFACTURERS ARE SQUARE D, GENERAL ELECTRIC, SIEMENS, IEC OR CUTLER HAMMER. CIRCUIT BREAKERS SHALL BE BOLT-ON TYPE, UNLESS INDICATED OTHERWISE ON THE DRAWINGS, WITH INTERRUPTING RATINGS EQUAL TO OR GREATER THAN FAULT CURRENTS AVAILABLE AT THE POINT OF SERVICE, 10 KAIC MINIMUM FOR 208Y/120 VOLT SYSTEMS, 14 KAIC MINIMUM FOR 480Y/277 VOLT SYSTEMS. OTHER CIRCUIT BREAKER RATINGS SUCH AS HACR, HID, SWD, GFCI AND SHUNT-TRIP FEATURES SHALL BE PROVIDED WHERE REQUIRED BY CODE OR AS INDICATED ON THE DRAWINGS. BALANCE THE LOAD ON EACH PANEL AND DISTRIBUTION SYSTEM INSTALLED.

2.7 FUSIBLE AND NON-FUSED DISCONNECT SWITCHES SHALL BE HEAVY DUTY WITH QUICK MAKE/ QUICK BREAK OPERATION, WITH A NEMA 1 RATING (INTERIOR) OR NEMA 3 RATING (EXTERIOR) UNLESS OTHERWISE NOTED OR REQUIRED BY CODE. PROVIDE DIFFERENT ENCLOSURES IF NEEDED, BASED ON THE CONDITIONS AFFECTING THE EQUIPMENT. FUSES SHALL BE DUAL ELEMENT - TIME DELAY, BUSSMAN TYPE LPN-RK (250 VOLT) OR LPS-RK (600 VOLT) FOR 600 AMPERES AND BELOW, AND BUSSMAN TYPE KRP-C ABOVE 600 AMPERES. EQUIVALENT FUSES BY FERRAZ-SHAWMUT OR LITTELFUSE ARE ACCEPTABLE.

2.8 TRANSFORMERS SHALL BE D.O.E. 2016 COMPLIANT, 150°C RISE DRY-TYPE, CORE AND COIL, IN A NEMA 1 VENTILATED ENCLOSURE WITH FOUR (4) TWO-AND-ONE-HALF PERCENT PRIMARY TAPS. SOUND RATINGS AND INSULATION SYSTEMS SHALL BE IN ACCORDANCE WITH NEMA STANDARDS.

2.9 NAMEPLATES SHALL BE PROVIDED FOR IDENTIFICATION OF ALL POWER DISTRIBUTION EQUIPMENT, AND SHALL BE ENGRAVED PHENOLIC WITH WHITE LETTERING AND BLACK BACKGROUND, UNLESS DIRECTED OTHERWISE BY THE OWNER'S REPRESENTATIVE. PANELBOARD BRANCH CIRCUITS SHALL BE IDENTIFIED WITH TYPEWRITTEN DIRECTORIES.

2.10 THE OWNER'S TELECOMMUNICATIONS SYSTEM "HEAD-END" EQUIPMENT IS FURNISHED AND INSTALLED UNDER ANOTHER CONTRACT WITH THE OWNER. THE ELECTRICAL CONTRACTOR SHALL PROVIDE:

- A. 120 VOLT POWER CIRCUITS AND ASSOCIATED RECEPTACLES AS SHOWN ON THE PLANS.
- B. 4 11/16" SQUARE FLUSH OUTLET BOXES WITH SINGLE-GANG PLASTER RING AT DEVICE LOCATIONS, AND A BLANK COVER PLATE FOR ALL BOXES WITHOUT FACEPLATES. PROVIDE EACH BOX WITH A 3/4" EMT CONDUIT, STUBBED UP TO AN ACCESSIBLE LOCATION. 12" MINIMUM ABOVE LAY-IN GRID CEILINGS OR UP TO THE STRUCTURAL DECK IN EXPOSED CEILING AREAS. PROVIDE CAT5 CABLE WITH TERMINATION AT OUTLET AND A 15' SERVICE LOOP IN THE SERVER ROOM TO BE TERMINATED BY OWNER'S I.T. VENDOR.
- C. PROVIDE 3/4" THICK FIRE RETARDANT PAINTED PLYWOOD BACKBOARDS AS LOCATED ON THE PLANS.
- D. PROVIDE A 12" X 2" COPPER GROUND BAR AT EACH PLYWOOD BACKBOARD, AND #6 COPPER GROUND CONDUCTOR CONNECTED TO THE BUILDING GROUNDING ELECTRODE SYSTEM.

2.11 PROVIDE A COMPLETE CLOSED CIRCUIT, ELECTRICALLY SUPERVISED, ZONED, ADDRESSABLE FIRE ALARM SYSTEM AS SPECIFIED HEREIN, AND INDICATED ON THE CONTRACT DOCUMENTS. THE SYSTEM SHALL INCLUDE BUT NOT BE LIMITED TO, ALL CONTROL PANELS, POWER SUPPLIES, BATTERY BACKUPS, ANNUNCIATORS, SIGNAL INITIATING DEVICES, AUDIBLE AND VISUAL ALARM DEVICES, CONDUIT, WIRE, FITTINGS AND ALL ACCESSORIES REQUIRED TO PROVIDE A COMPLETE OPERATING SYSTEM.

A. THE SYSTEM SHALL COMPLY WITH THE APPLICABLE PROVISIONS OF THE CURRENT NFPA 72 STANDARDS AND SHALL MEET ALL REQUIREMENTS OF THE LOCAL AUTHORITIES HAVING JURISDICTION. ALL EQUIPMENT AND DEVICES SHALL BE NEW, LISTED BY UNDERWRITERS LABORATORIES, INC. AND APPROVED. THE FIRE ALARM SYSTEM SHALL BE INSTALLED AND WIRED BY A CERTIFIED FIRE ALARM SYSTEM TECHNICIAN, IN ACCORDANCE WITH STATE REQUIREMENTS.

B. WIRING SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE, LOCAL CODES AND THE NATIONAL FIRE PROTECTION ASSOCIATION STANDARD NUMBER 72. UNLESS OTHERWISE SPECIFIED BY LOCAL CODES, THE MINIMUM WIRE SIZE SHALL BE 14 AWG FOR AC POWER SUPPLY CIRCUITS, 16-AWG FOR SIGNAL INITIATING CIRCUITS.

C. CONDUCT TESTS OF THE SYSTEM IN THE PRESENCE OF THE OWNER OR THEIR AGENT. ALL MATERIALS AND INSTALLATION SHALL BE GUARANTEED TO BE FREE OF DEFECTS IN MATERIAL AND WORKMANSHIP FOR ONE (1) YEAR. THE CONTRACTOR SHALL TURN OVER TO THE OWNER, SYSTEM WIRING DIAGRAMS AND MAINTENANCE DATA.

D. SYSTEM SHALL BE MANUFACTURED BY SIMPLEX, NOTIFIER, SIEMENS, HONEYWELL OR SILENT KNIGHT-FARENHYT.  
1. NOTE: PROVIDE ALL DEVICES AND COMPONENTS FOR A COMPLETE AND OPERABLE SYSTEM, AS DETERMINED BY THE SYSTEM MANUFACTURER/SUPPLIER.

2.12 LIGHTING CONTROL SYSTEM SHALL BE AS INDICATED ON THE DRAWINGS.

2.13 SECURITY SYSTEM SHALL BE AS INDICATED ON THE DRAWINGS.

PART 3 EXECUTION

3.1 COORDINATE THE ELECTRICAL WORK WITH ALL OTHER TRADES ON SITE, INCLUDING CORE DRILL LOCATIONS AND FEEDER ROUTINGS. PROVIDE LAYOUT DRAWINGS FOR ELECTRICAL DISTRIBUTION ROOMS AND CLOSETS AND SUBMIT COPIES TO THE OWNER'S REPRESENTATIVE FOR REVIEW AND APPROVAL BEFORE ROUGHING-IN CONDUITS AND EQUIPMENT.

3.2 CUTTING AND PATCHING OF WALLS, FLOORS AND CEILINGS SHALL BE PROVIDED BY SKILLED MECHANICS IN THE TRADE. FINAL FINISHING AND PAINTING IS BY THE GENERAL TRADES CONTRACTOR.

3.3 IT IS THE PURPOSE OF THE CONTRACT DOCUMENTS TO INDICATE THE APPROXIMATE LOCATIONS OF ALL EQUIPMENT, OUTLETS, ETC. THE EXACT LOCATION OF EQUIPMENT AND OUTLETS MAY BE ADJUSTED FROM TIME TO TIME AS THE WORK PROGRESSES. THIS CONTRACTOR SHALL CONFIRM THE EXACT LOCATIONS AND ARRANGE THE WORK ACCORDINGLY. THE OWNER'S REPRESENTATIVE RESERVES THE RIGHT TO EFFECT REASONABLE CHANGES IN THE LOCATION OF OUTLETS UP TO THE TIME OF ROUGH-IN WITHOUT ADDITIONAL COST. ALL GFCI RECEPTACLES SHALL BE INSTALLED IN A READILY ACCESSIBLE LOCATION, VISIBLE FOR TESTING AND INSPECTION.

3.4 SERVE AND CONNECT ALL ELECTRICAL EQUIPMENT FURNISHED BY OTHER DIVISIONS OR OWNER. COORDINATE ALL OUTLET LOCATIONS AND CONNECTION REQUIREMENTS WITH THE CONTRACTOR FURNISHING THE EQUIPMENT. BEFORE CONNECTING ANY PIECE OF EQUIPMENT, CHECK THE NAMEPLATE RATING AGAINST THE INFORMATION SHOWN ON THE CONTRACT DOCUMENTS AND CALL ANY DISCREPANCIES TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE. CAREFULLY STUDY ALL MANUFACTURERS' EQUIPMENT WIRING DIAGRAMS AND MAKE CONNECTIONS ACCORDINGLY.

3.5 LOCATE AND PROVIDE ALL OPENINGS IN FLOORS, CEILINGS, AND WALLS TO ALLOW FOR CONDUIT PENETRATIONS.

- A. SUBMIT TO THE OWNER'S REPRESENTATIVE ALL LOCATIONS AND SIZES OF OPENINGS WHICH MUST BE PROVIDED FOR THE WORK BEFORE DRILLING OR SETTING ANY SLEEVES.
- B. FINAL LOCATIONS AND SIZES OF ALL OPENINGS SHALL BE SUBJECT TO THE OWNER'S REPRESENTATIVE FINAL APPROVAL.
- C. PROVIDE ALL FIRE STOPS AND SMOKE AND FIRE BARRIERS AROUND ALL CONDUIT PENETRATIONS PROVIDED UNDER THIS WORK. ALL FIRE BARRIERS SHALL BE UL LISTED AND RECOGNIZED SUITABLE BY FACTORY MUTUAL AND NFPA. FIRE BARRIERS SHALL RESTORE ALL PENETRATIONS TO BE AT LEAST THE MINIMUM FIRE RATING OF THE SURFACE PENETRATED. BARRIERS SHALL COMPLETELY FILL THE OPENING AND SHALL BE SECURELY ANCHORED TO PREVENT ACCIDENTAL REMOVAL. ALL SMOKE AND FIRE BARRIERS SHALL BE MADE USING ONLY RECOGNIZED MATERIALS AND WILL BE ACCEPTABLE SUBJECT TO THE OWNER'S REPRESENTATIVE FINAL APPROVAL. SMOKE AND FIRE BARRIERS MAY BE STI FIRE SEAL, DUPONT OR US GYPSUM.
- D. SEAL EXTERNAL WALL PENETRATIONS WHERE CONDUIT PASSES FROM A COLDER AREA TO A WARMER AREA.

3.6 MOUNTING HEIGHTS OF DEVICES ARE AS INDICATED ON THE PLANS, OR AS SHOWN ON THE ARCHITECTURAL INTERIOR ELEVATIONS. OUTLET BOXES FOR DEVICES SHALL NOT BE MOUNTED BACK-TO-BACK IN STUD WALL CONSTRUCTION. ADJACENT DEVICES SHALL BE INSTALLED IN GANGED BOXES WITH COMMON COVER PLATES WHEREVER POSSIBLE. UNLESS OTHERWISE NOTED, RECEPTACLES SHALL BE MOUNTED VERTICALLY, WITH THE GROUND PIN ABOVE THE PHASE AND NEUTRAL PIN.

3.7 ALL BOXES AND CONDUITS SHALL BE CONCEALED IN FINISHED AREAS OF NEW CONSTRUCTION. CONDUIT SYSTEMS SHALL BE SUPPORTED FROM THE STRUCTURE, INDEPENDENT OF DUCTWORK AND OTHER TRADES. HANGERS, STRAPS AND CLAMPS SHALL BE APPROVED FOR THE PURPOSE. JUNCTION BOXES, OUTLET BOXES AND PULL BOXES SHALL BE LOCATED IN ACCESSIBLE AREAS AND SHALL BE PERMANENTLY MARKED ACCORDING TO THE CIRCUIT OR SYSTEM SERVED.

3.8 SUSPENDED CEILING SYSTEMS, INCLUDING THE ASSOCIATED SUPPORT WIRES, SHALL NOT BE USED FOR CONDUIT SUPPORT. CONDUITS SHALL NOT INTERFERE WITH CEILING TILE INSTALLATION OR REMOVAL AND SHALL NOT REST ON OR BE ATTACHED TO THE T-BARS OF THE SYSTEM.

3.9 RENOVATION WORK MAY REQUIRE THE INSTALLATION OF SURFACE MOUNTED CONDUIT OR SURFACE RACEWAYS WHERE CONCEALING CONDUIT IS NOT POSSIBLE. THE ROUTING AND LOCATION OF SUCH RACEWAYS SHALL BE APPROVED BY THE OWNERS' REPRESENTATIVE.

3.10 PROVIDE THE PROPER CONNECTION AND/OR DISCONNECT AND OVER-CURRENT PROTECTION FOR OWNER AND DIVISION 5 EQUIPMENT, BASED UPON THE CONTRACT DOCUMENTS. VERIFY THIS INFORMATION WITH THE UNIT NAMEPLATE OR FIELD WIRING SCHEMATIC BEFORE ROUGH IN.

3.11 ELECTRICAL EQUIPMENT SHALL BE STORED IN A HEATED AND VENTILATED SPACE UNTIL READY FOR DELIVERY TO THE FINISHED EQUIPMENT SPACE ON THE SITE.

3.12 FOR FEEDERS AND EQUIPMENT CIRCUITS 40 AMPERE RATED AND ABOVE, THE INTENT OF THE DESIGN IS TO INSTALL A MAXIMUM OF THREE (3) CURRENT-CARRYING CONDUCTORS IN A SINGLE CONDUIT (RACEWAY), UTILIZING THE FULL CONDUCTOR AMPACITIES ALLOWED AND DEFINED IN THE NATIONAL ELECTRICAL CODE ARTICLE 310. COMBINING OF FOUR (4) OR MORE CURRENT-CARRYING CONDUCTORS IN A SINGLE RACEWAY MUST BE REVIEWED AND APPROVED BY THE OWNER'S REPRESENTATIVE.

- 3.13 UNLESS SPECIFICALLY REQUESTED BY THE OWNER'S REPRESENTATIVE, CEILING AND WALL MOUNTED OCCUPANCY SENSORS SHALL BE SET WITH DEFAULT TIMES, AS FOLLOWS:
  - A. STORAGE AREAS - 5 MINUTES
  - B. PUBLIC RESTROOMS - 30 MINUTES
  - C. ALL OTHER SPACES - 10 MINUTES

CIRCUIT BREAKER PANEL SCHEDULE													
PANEL		HA		AMP		200		VOLTAGE		480/277V-3Ø-4W			
LOAD DESCRIPTION	CONTINUOUS LOAD	NON-CONTINUOUS LOAD (80%)	RECEPTACLE LOAD	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	
Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	
TRANSFORMER #1-LA	4.2	3.0	0.4	1	A	70/3	3	B	10	20	1	6.0	
WAITING LIGHTING	0.4			20	1	7	A	3	10	20		6.0	
CORRIDOR LTG	0.2			20	1	9	B	10	20	1		6.0	
EXT. DOWNLTG		0.4		20	1	11	C	12	20	1		6.0	
EXT. WALL LTG	0.3			20	1	13	A	14	20	1		6.0	
SITE POLE LTG	1.6			20	1	15	B	16	20	1		6.0	
BOH LIGHTING	0.2			20	1	17	C	18	20	1		6.0	
SPARE				20	1	19	A	20	20	1		6.0	
SPARE				20	1	21	B	22	20	1		6.0	
SPARE				20	1	23	C	24	20	1		6.0	
SPARE				25	A	25						6.0	
SPARE				27	B	27						6.0	
SPARE				29	C	29						6.0	
SPARE				31	A	31						6.0	
SPARE				33	B	33						6.0	
SPARE				35	C	35						6.0	
SPARE				37	A	37						6.0	
SPARE				39	B	39						6.0	
SPARE				41	C	41						6.0	
											6.0	6.0	6.0

CONNECTED LOAD PER PHASE			
PHASE A	14.3	KWC	
	51.6	AMPS	
PHASE B	14.0	KWC	
	50.4	AMPS	
PHASE C	13.9	KWC	
	50.4	AMPS	

TOTAL CONNECTED LOAD		SCHEDULE REMARKS:	
42.2	KWC		
50.8	AMPS		
TOTAL DEMAND LOAD			
41.0	KWD		
49.3	AMPS		

CIRCUIT BREAKER PANEL SCHEDULE												
PANEL		LA		AMP		100		VOLTAGE		208/120V-3Ø-4W		
LOAD DESCRIPTION	CONTINUOUS LOAD	NON-CONTINUOUS LOAD (80%)	RECEPTACLE LOAD	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø
Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø
AHU-1 / CU-1	1.5			20	1	A	2	20				1.2
BWH-1		2.0		20	1	5	C	6	20	1		1.0
EF-1 / EF-2	0.1			20	1	7	A	8	20	1		1.0
SPARE				20	1	9	B	10	20	1		0.5
SPARE				20	1	11	C	12	20	1		0.5
POWER DOORS		1.0		20	1	13	A	14	20	1		1.0
POWER DOORS		1.0		20	1	15	B	16	20	1		1.0
COMPRESSOR		1.0		20	1	17	C	18	20	1		1.0
COMPRESS. PNL	0.2			20	1	19	A	20	20	1		0.4
SPARE				20	1	21	B	22	20	1		0.5
SECURE DOORS		0.2		20	1	23	C	24	20	1		0.9
EXTERIOR SIGN	1.0			20	1	25	A	26	20	1		1.0
EXTERIOR SIGN	1.0			20	1	27	B	28	20	1		1.0
SITE SIGN		1.0		20	1	29	C	30	20	1		1.0
SPARE				20	1	31	A	32	20	1		1.0
SPARE				20	1	33	B	34	20	1		1.0
SPARE				20	1	35	C	36	20	1		1.0
SPARE				20	1	37	A	38	20	1		1.0