

ROW IMPACT NOTES

1. PER CHAPTER 49, SECTION 4:58 OF CITY CODE: ALL SIDEWALKS SHALL BE KEPT AND MAINTAINED IN GOOD REPAIR BY THE OWNER OF THE LAND, ADJACENT TO AND ABUTTING UPON THE SAME; AND IF ANY OWNER SHALL NEGLECT TO KEEP AND MAINTAIN THE SIDEWALK OR ANY WALKS AND RAMPS LEADING TO A CROSSWALK ALONG THE FRONT, REAR, SIDE OF THE LAND IN GOOD REPAIR AND SAFE FOR THE USE OF THE PUBLIC, THE SAID OWNER SHALL BE LIABLE TO THE CITY FOR ANY DAMAGES RECOVERED AGAINST THE CITY SUSTAINED BY ANY PERSON BY REASON OF SAID SIDEWALK BEING UNSAFE AND OUT OF REPAIR, PRIOR TO PROJECT CLOSURE, ALL EXISTING SIDEWALKS IN NEED OF REPAIR MUST BE REPAVED IN ACCORDANCE WITH CITY STANDARDS. CONTRACTOR WILL REPLACE ANY CONTRACTOR DAMAGED SIDEWALK (FULL FLAG) AS A RESULT OF CONTRACTOR OPERATIONS.
2. THE CONSTRUCTION OF ANY PUBLIC UTILITY AND WORK WITHIN THE CITY OF ANN ARBOR RIGHT-OF-WAY COVERED BY THESE PLANS SHALL CONFORM TO THE CURRENT CITY OF ANN ARBOR PUBLIC SERVICES STANDARD SPECIFICATIONS AND SUBSEQUENT UPDATES.
3. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING PUBLIC ROAD PAVEMENT DAMAGE TO THE PUBLIC ROAD PAVEMENT DURING THE COURSE OF CONSTRUCTION MAY NECESSITATE MILLING AND RESURFACING OF THE DAMAGED AREAS AT THE COST OF (THE CONTRACTOR).
4. PAVEMENT MARKINGS DISTURBED DUE TO PAVEMENT CUTS OR CONSTRUCTION RELATED ACTIVITIES SHALL BE REPLACED AS DIRECTED BY ENGINEERING. REPLACEMENT DURING CONSTRUCTION OF THE PROJECT MAY BE CONSIDERED TEMPORARY, WITH FINAL PAVEMENT MARKING RESTORATION TO OCCUR AT THE END OF THE PROJECT.

SCHEDULE LIMITATIONS

1. ALL DIG LOCATIONS, INCLUDING BUT NOT LIMITED TO PIPE REPLACEMENT, STRUCTURE REPLACEMENT, AND STRUCTURE REPAIRS, MUST BE COMPLETED BY NOVEMBER 1, 2022. ANY PLAN EXTEND WORK BEYOND NOVEMBER 1 MUST BE SUBMITTED TO U-M AEC FOR APPROVAL.
2. MANHOLE CONSTRUCTION AND PIPE INSPECTION RELATED TO THE SANITARY SEWER ON THE WEST SIDE OF THE CHEMISTRY BUILDING (SEE DETAIL #1 ON SHEET C-140) SHALL BE SCHEDULED EARLY AND MUST BE COMPLETED SUCH THAT ANY POTENTIAL CONSTRUCTION FOLLOW-UP (INCLUDING ALTERNATES 1, 2, 3, 4, 5, & 6) BASED ON INSPECTION IS COMPLETED BY NOVEMBER 1, 2022.
3. CONSTRUCTION WORK RELATED TO SANITARY STRUCTURE #71-71586 (SEE DETAIL #9 ON SHEET C-142) SHALL NOT COMMENCE PRIOR TO SCHEDULING AND COORDINATION WITH THE U-M PROJECT MANAGER.
4. WORK IN THE DIAG SHALL NOT BE SCHEDULED DURING THE ANN ARBOR ART FAIR, JULY 19-23, 2022. (INCLUDES ART FAIR SET-UP DAYS)
5. WORK NEAR NORTHWOOD V HOUSING AND THE PLYMOUTH AND MURFIN INTERSECTION (SEE DETAILS #16 AND #17 ON SHEET C-145) SHALL NOT START BEFORE 9AM DAILY.
6. CONTRACTOR SHALL PROVIDE A DETAILED SCHEDULE PRIOR TO THE CONSTRUCTION KICK-OFF MEETING. SCHEDULE ADJUSTMENTS MAY BE NECESSARY BASED ON CAMPUS ACTIVITIES AND EVENTS. CONTRACTOR WILL BE RESPONSIBLE FOR COORDINATING WITH THE OWNER THROUGHOUT THE PROJECT AND UPDATING THE SCHEDULE AS NEEDED. WEATHER CANCELLATIONS ARE GENERALLY MOVED TO THE END OF THE CONSTRUCTION SCHEDULE RATHER THAN PUSHING ALL SCHEDULED WORK BACK IN ORDER TO MAINTAIN A MINIMUM NOTIFICATION TIME FOR ALL CAMPUS STAKEHOLDERS.

FY20 AND FY21 W&S - SANITARY AND STORM SEWER VIDEO ASSESSMENT AND REPAIRS (BP2)

U of M Project Number: P00017748
Block Number: 0000001

Project Overview

REPAIR AND REPLACEMENT (INCLUDING FULL DIG, REPLACEMENT, MASONRY, STRUCTURE LINING, AND PIPE Lining) OF EXISTING STORM AND SANITARY SEWER PIPE AND STRUCTURES IN THE CENTRAL CAMPUS DIAG AREA, ALSO, REPAIR OF EXISTING SANITARY SEWER PIPE AND STRUCTURES IN THE NORTH CAMPUS AREA, SPECIFICALLY AT THE INTERSECTION OF PLYMOUTH & MURFIN, ADJACENT TO THE NAVAL ARCHITECTURE & MARINE ENGINEERING BUILDING, AND AT NORTHWOOD V.

Applicable Codes

MDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION
 MICHIGAN MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES
 UNIVERSITY OF MICHIGAN DESIGN GUIDELINES AND STANDARD DETAILS
 2020
 2011
 LATEST VERSION



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Central Campus University Of Michigan Ann Arbor, MI

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DESIGNED BY:



34000 Plymouth Road
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 OHM Project: 0910-20-010

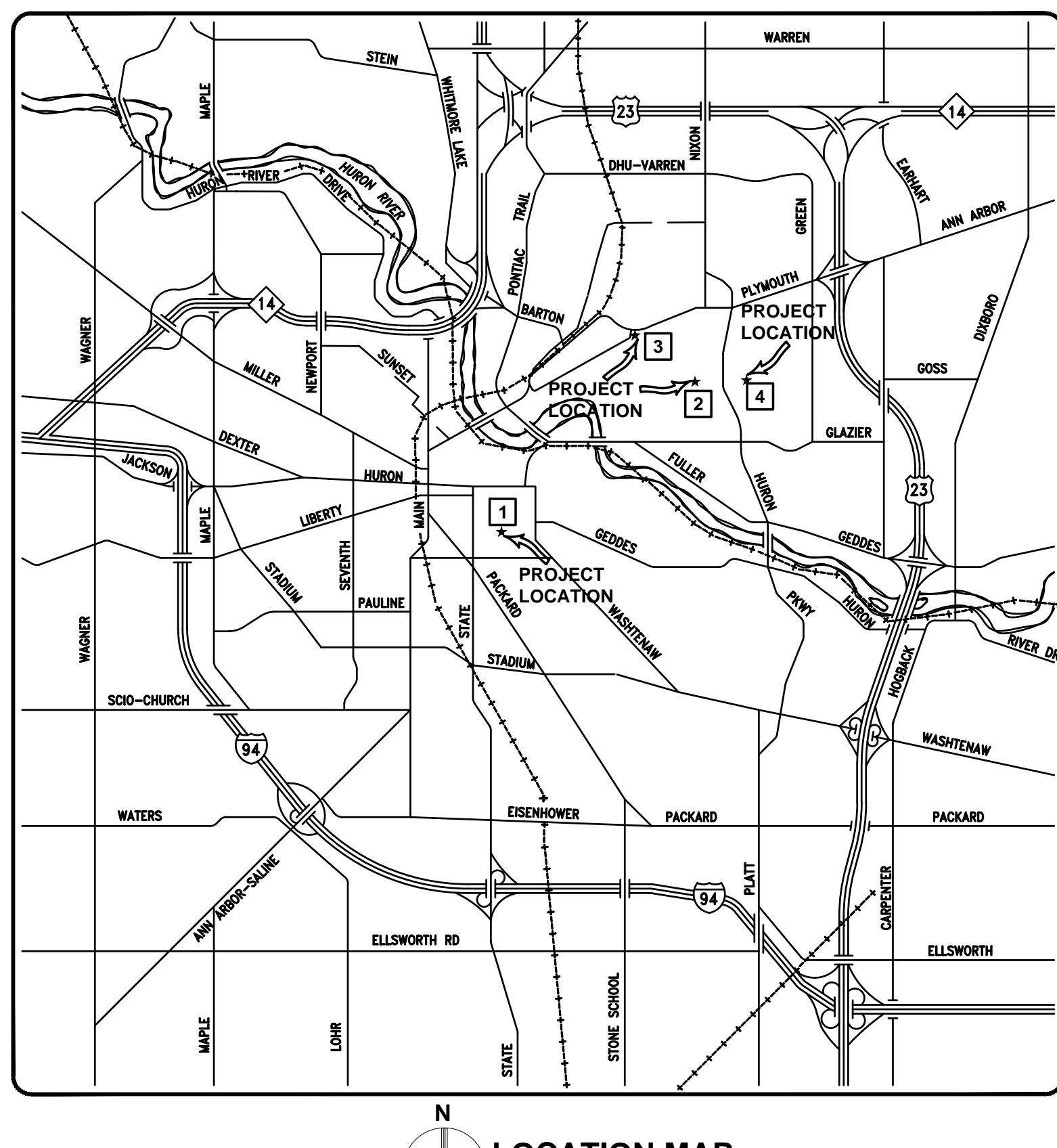
Issue

Date	Description
03/12/21 DD 35% OWNER REVIEW	
04/21/21 CD 35% OWNER REVIEW	
05/24/21 FOR BID	
06/08/21 CD 35% OWNER REVIEW	
07/26/21 CD 35% OWNER REVIEW	
08/26/21 CD 35% OWNER REVIEW	
10/05/21 CD 35% OWNER REVIEW	
12/17/21 CD 35% OWNER REVIEW	
02/11/22 FOR BID	

Index Of Sheets

- New or Revised Sheet In This Issue
- Non-Revised Sheet In This Issue

Sheet	Sheet Title
C-001	COVER SHEET
C-110	CIVIL NOTES & SOIL EROSION AND SEDIMENT CONTROL
C-140	REPAIR LOCATIONS
C-141	UTILITY PLAN
C-142	UTILITY PLAN
C-143	UTILITY PLAN
C-144	UTILITY PLAN
C-145	UTILITY PLAN
C-501	DETAILS - MANHOLE AND PIPE REPAIR
C-520	DETAILS - PEDESTRIAN CONTROL & SITE RESTORATION
C-521	DETAILS - SITE RESTORATION



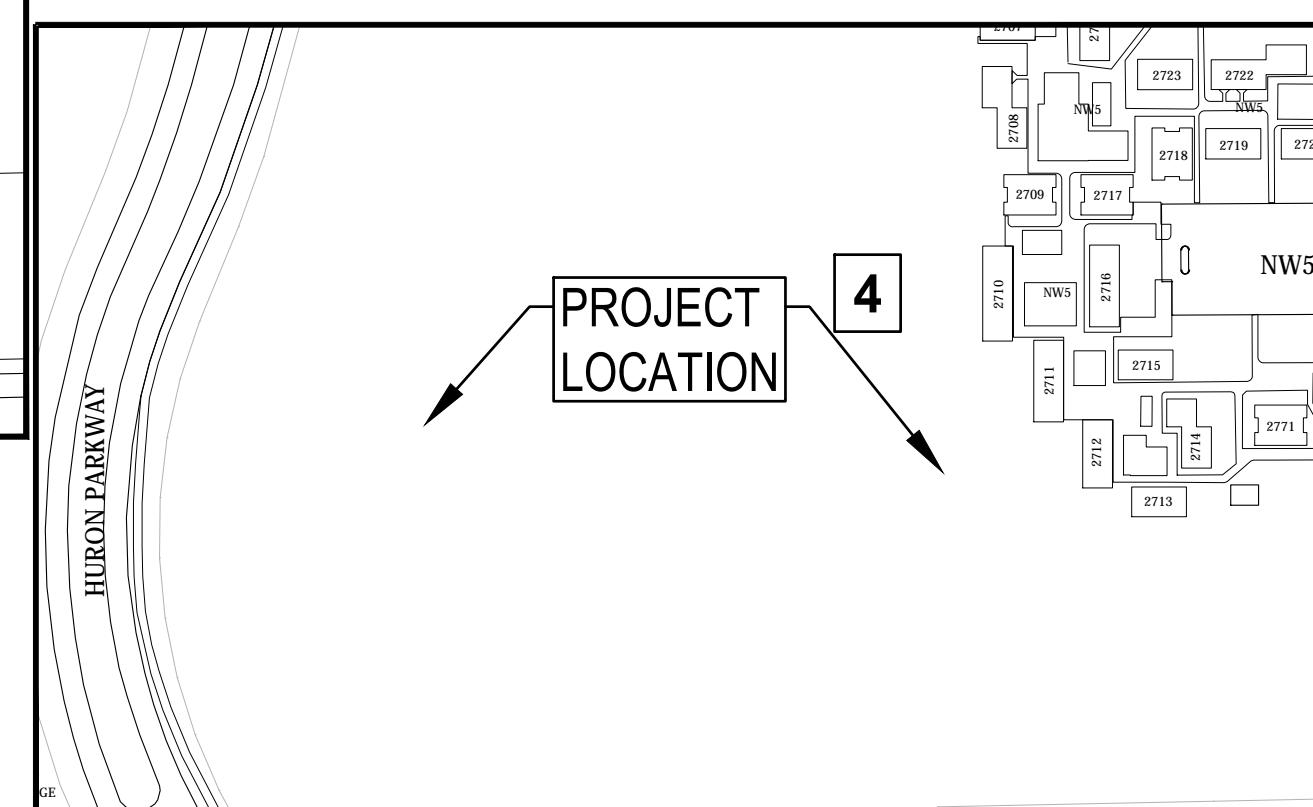
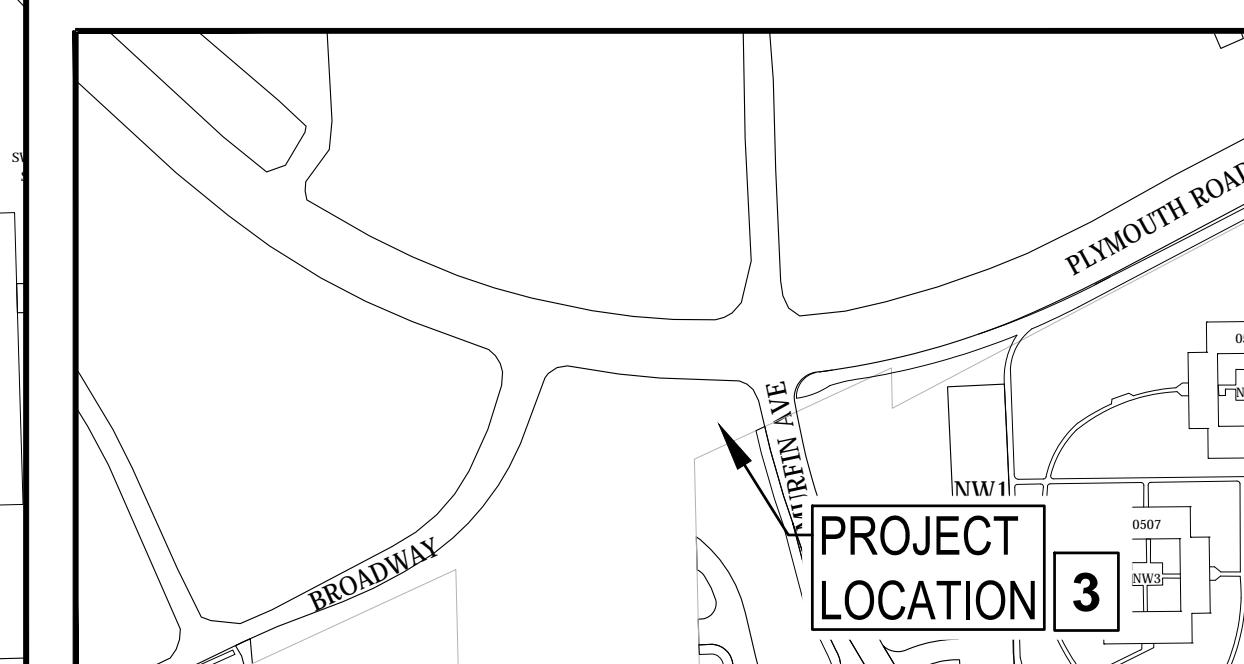
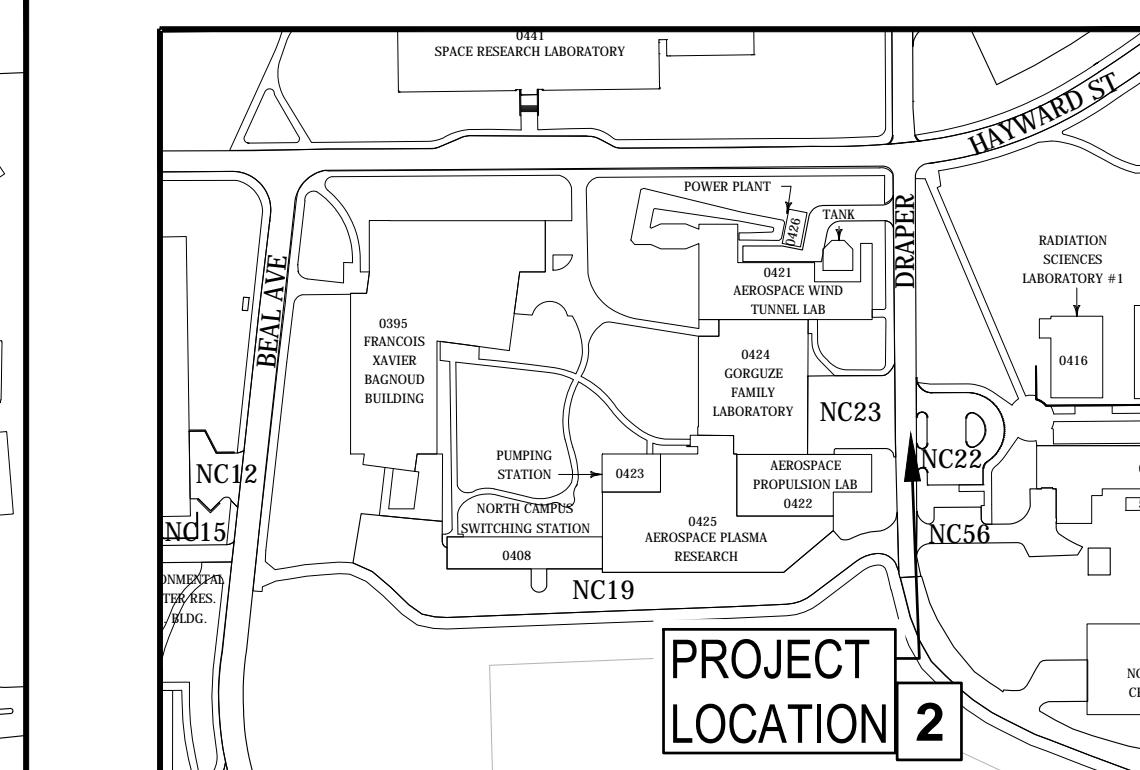
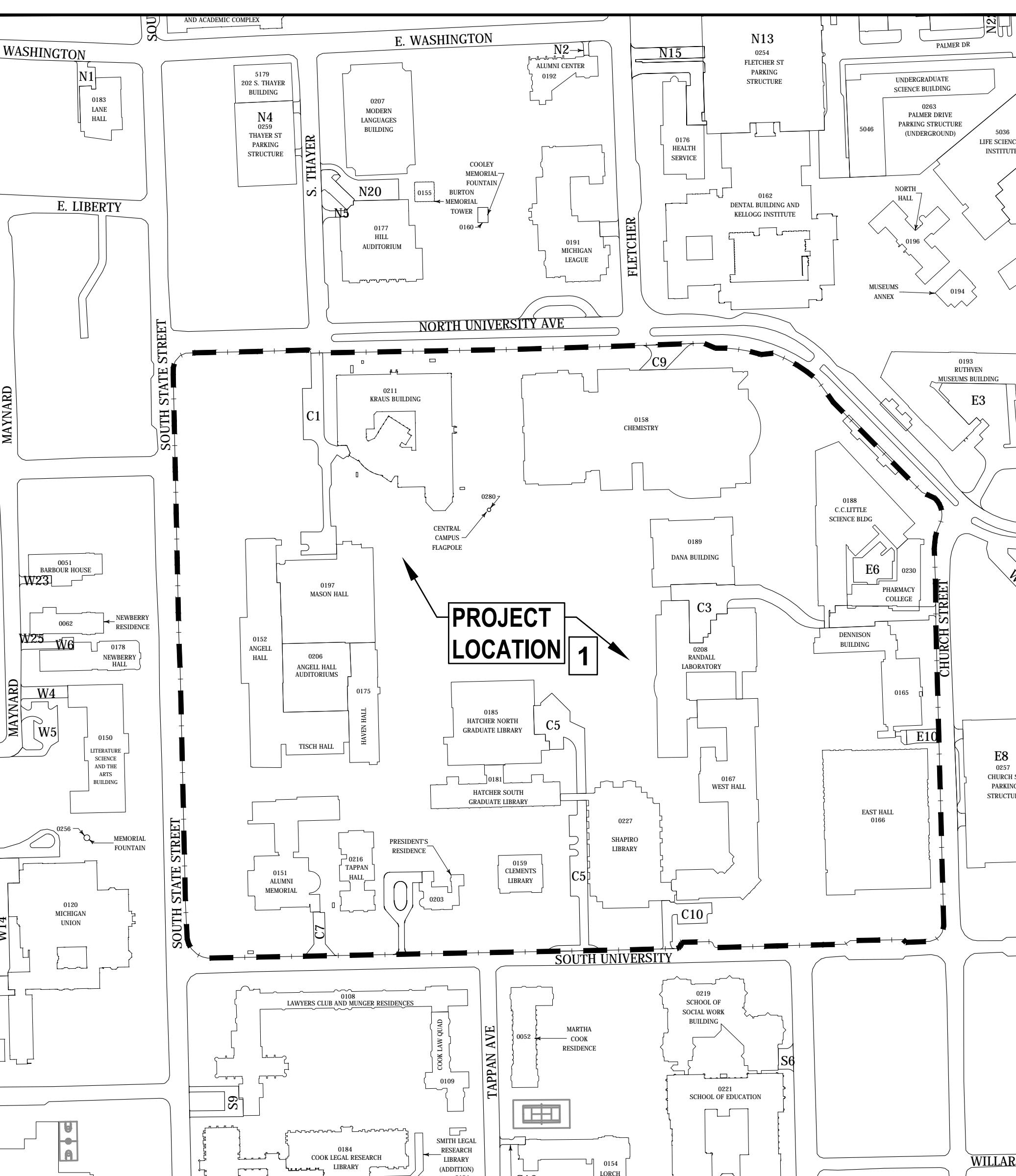
PROJECT NOTES

1. BID PLAN BACKGROUND IS GIS INFORMATION AND NOT A TOPOGRAPHIC SURVEY. EFFORTS HAVE BEEN MADE TO REPRESENT THE EXISTING SURFACE CONDITIONS AND DEPICT THE EXISTING UTILITIES ON THE PLANS, BUT INFORMATION MAY NOT BE COMPLETE. TREE CANOPIES ARE ESTIMATED AND MUST BE FIELD VERIFIED PRIOR TO BIDDING. COST FOR PROTECTION AND WORKING AROUND TREES SHALL BE INCLUDED IN THE BASE BID. BIDDERS ARE REQUIRED TO VISIT THE SITE TO DETERMINE IF ADDITIONAL RESTORATION OR PROTECTION OF EXISTING FEATURES IS REQUIRED TO COMPLETE THE WORK AND RESTORE THE SITE TO THE PRE-CONSTRUCTION CONDITION WHILE PROTECTING AND MAINTAINING SERVICE OF ALL UTILITIES.

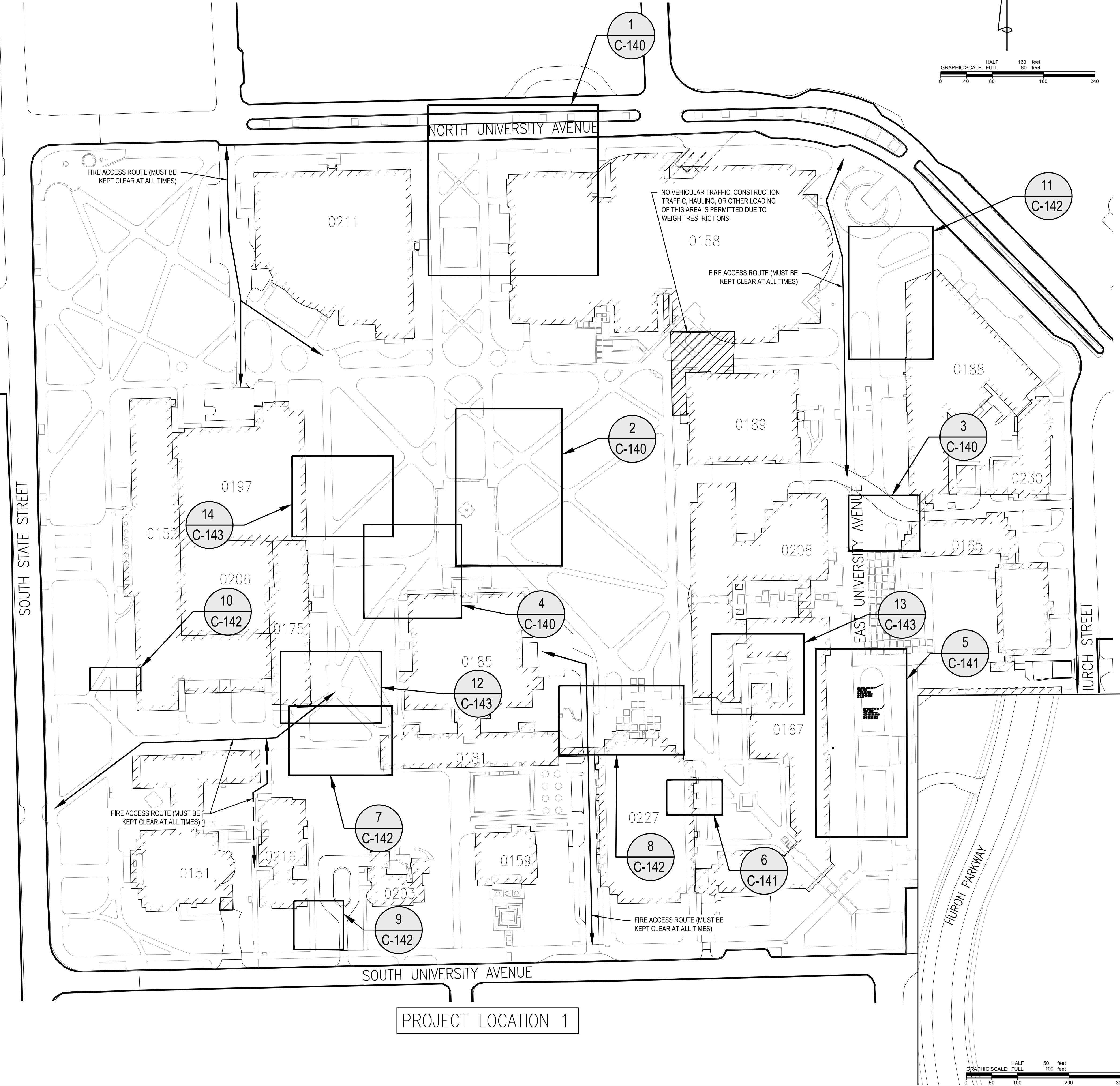
2. EXISTING UTILITIES ARE DEPICTED USING THE BEST AVAILABLE DATA. SOFT DIGS AND EXPLORATORY EXCAVATIONS MAY BE NECESSARY (AND IN SOME CASES ARE REQUIRED FOR THE CONSTRUCTION DOCUMENTS) TO VERIFY THE PROXIMITY TO PROPOSED EXCAVATIONS AND TO ENSURE ALL EXISTING UTILITIES REMAIN PROTECTED AND LIVE DURING THE WORK.

3. CONTRACTOR SHALL BE REQUIRED TO COMPLY WITH UNIVERSITY OF MICHIGAN COVID-19 SAFETY PROCEDURES AND POLICIES DURING THE WORK THAT ARE APPLICABLE AT THE TIME OF THE WORK.

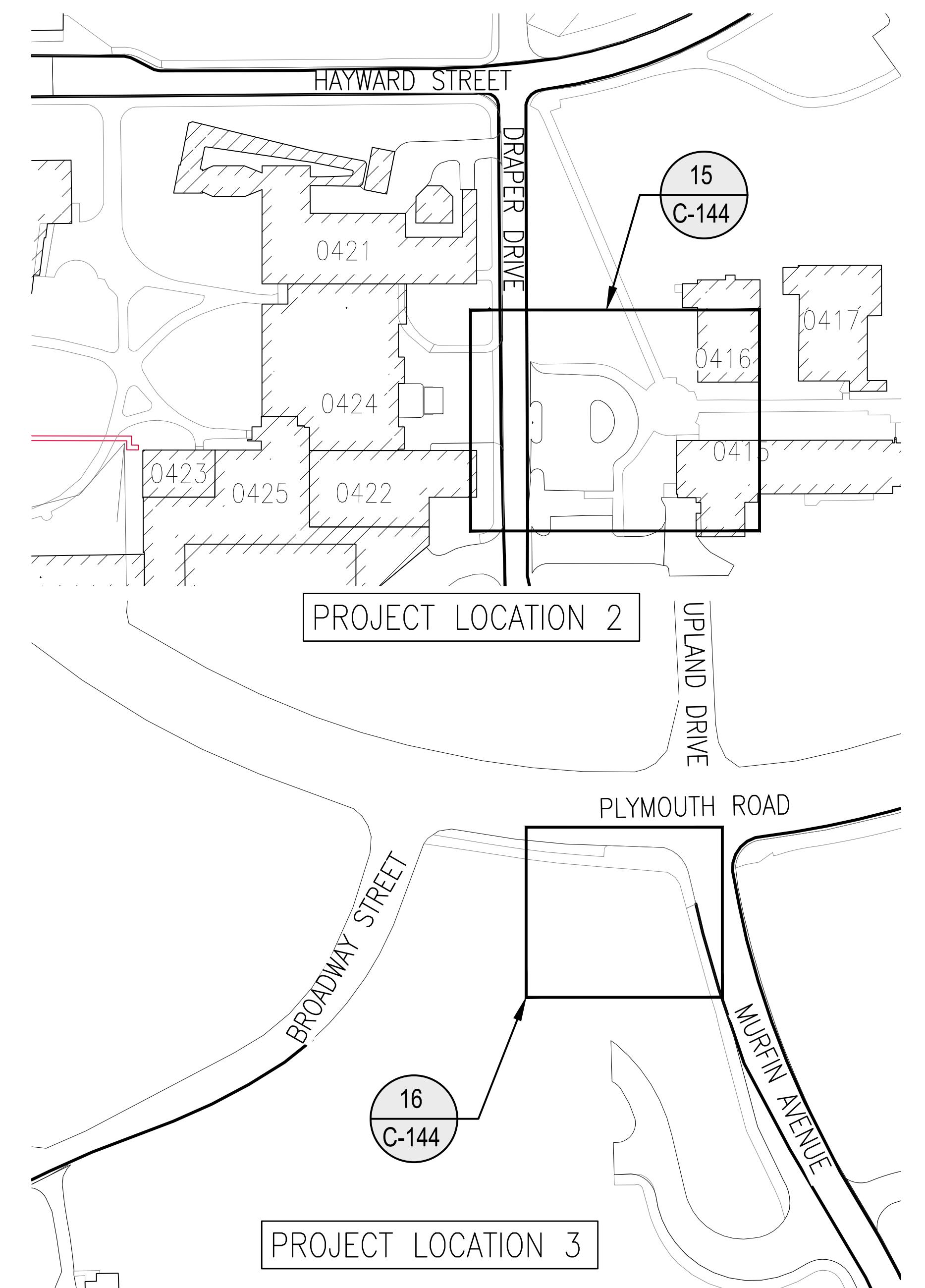
4. RESTORATION REQUIREMENTS FOR U-M PROPERTY ARE UNIVERSAL ACROSS THE PROJECT. THIS INCLUDES THE STAGING AREA AND ANY PROPERTY REQUIRING RESTORATION DUE TO HAULING, EXCAVATION, DEMOLITION, MATERIAL STAGING, EQUIPMENT STORAGE, TREE PROTECTION, SOIL EROSION MEASURES, AND ANY SCOPE ITEMS.



CENTRAL CAMPUS



NORTH CAMPUS



REPAIR LOCATIONS
UNIVERSITY OF MICHIGAN
P17748 SANITARY/STORM SEWER VIDEO ASSESSMENT & REPAIRS (BP2)

REPAIR LOCATIONS

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C-110

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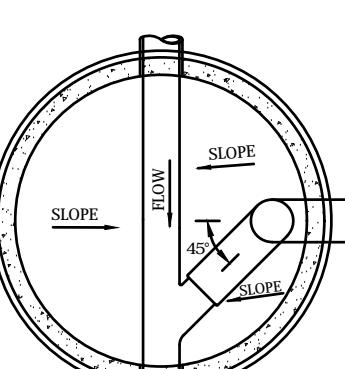
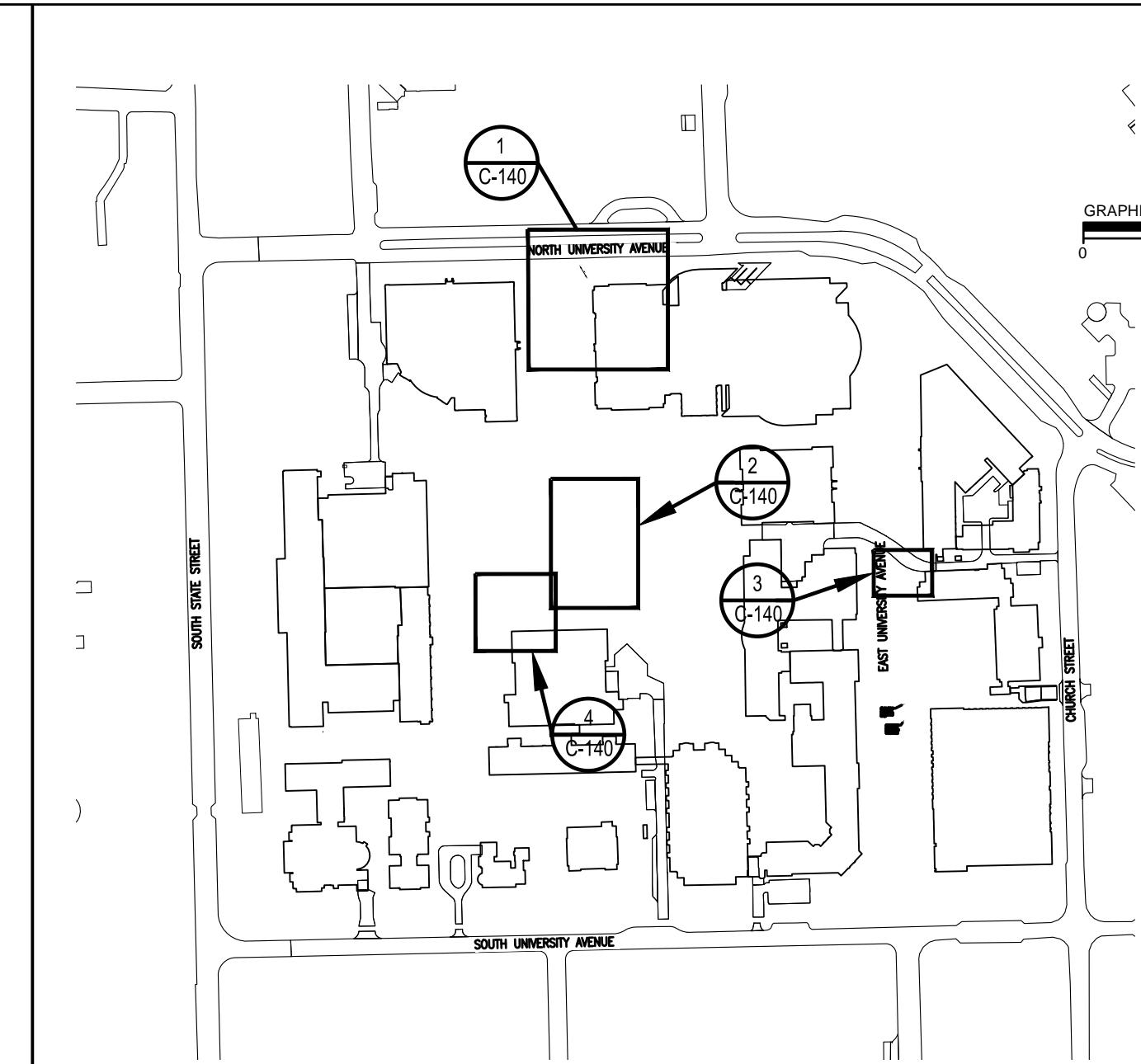
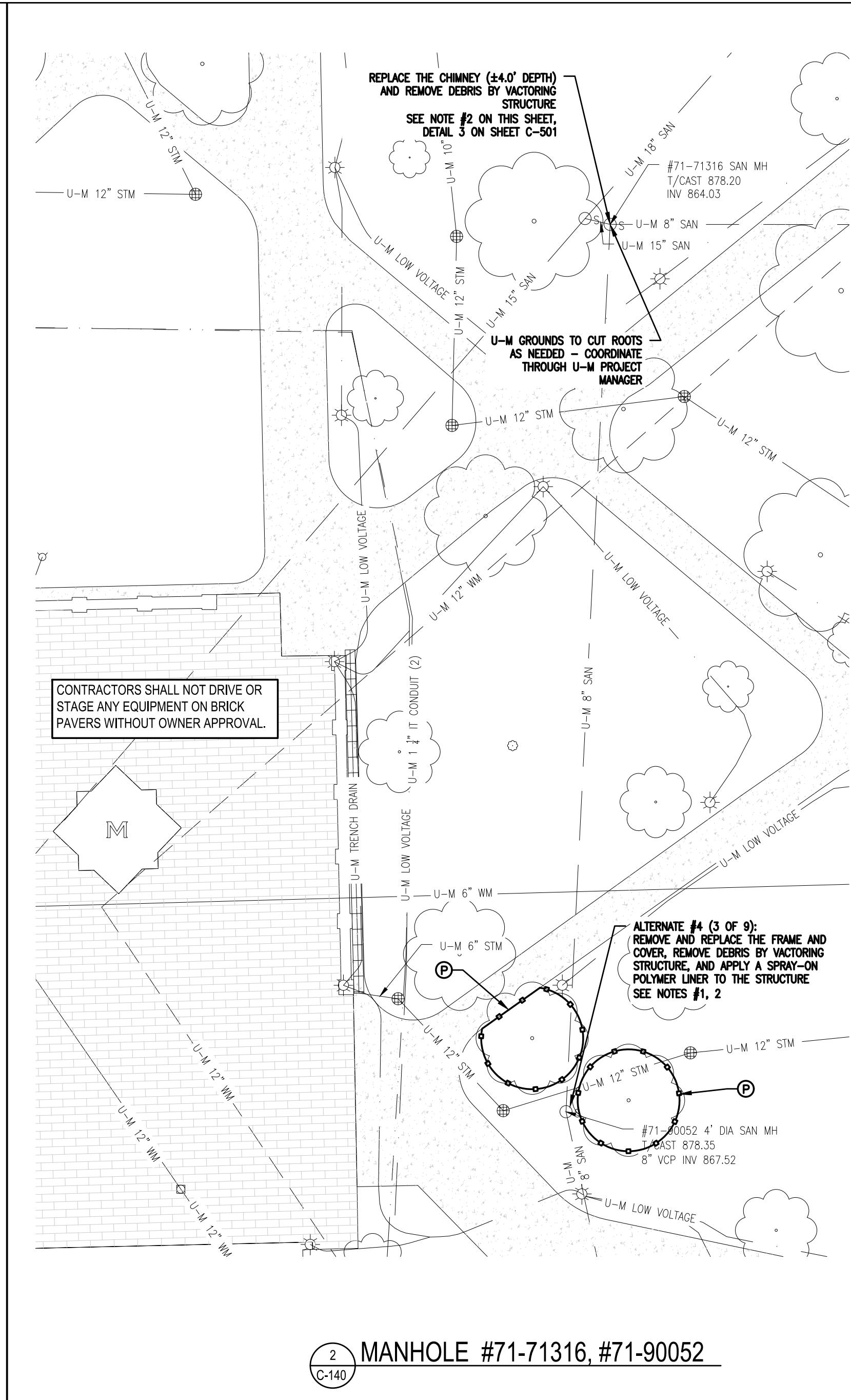
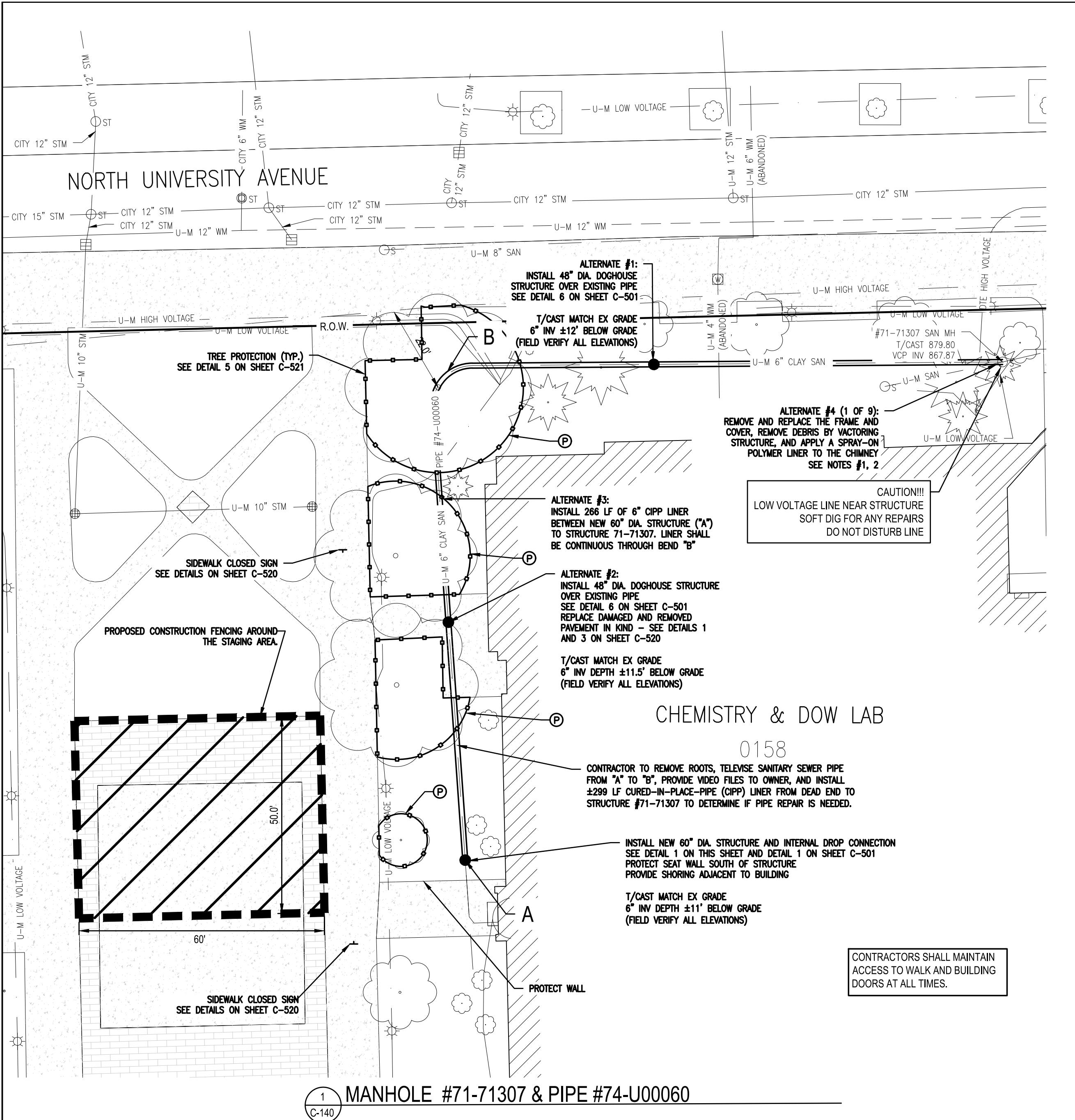
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GRAPHIC SCALE: HALF FULL

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INTERIOR DROP - PLAN
DURAN INC. RELINER INSIDE DROP BOWL ATTACHED TO MANHOLE WALL WITH (4) 3/8" STAINLESS STEEL WEDGE ANCHORS, STAINLESS STEEL WASHERS AND NUTS.

BETWEEN DROP BOWL AND MANHOLE WALL PLACE (PRESS SEAL GASKET CO. EASY STIK ALL WEATHER TROWELABLE BUTYL, BK-0069-1)

TAPS TO EXISTING MANHOLES SHALL BE MADE BY CORING AND INSTALLING A KOR-N-SEAL BOOT (OR APPROVED EQUAL). BLIND DRILLING WILL ONLY BE PERMITTED IN LIEU OF CORING WITH PRIOR APPROVAL FROM U-M. ALL TAPS MUST BE MADE BELOW TRANSITION SECTION.

ATTACH DROP BOWL TO DROP PIPE USING FERNO FLEXIBLE COUPLING WITH STAINLESS STEEL STRAPS.

MDOT 6A OR CAREFULLY AND UNIFORMLY TAMPED SAND IN MAXIMUM 6" LAYERS.

45° PVC PLASTIC BEND, SOLVENT WELDED TO DROP PIPE. POINT FORM SMOOTH UNIFORM CHANNEL IN CONCRETE FILL.

SEE STANDARD MANHOLE DRAWING (DETAIL 1 ON SHEET C-501) FOR OTHER MANHOLE DETAILS

DROP PIPE. LOCATION SHALL NOT INTERFERE WITH MANHOLE STEPS, OR STEPS AND CONE SECTION SHALL BE REPOSITIONED.

TRANSITION SECTION MUST BE FIRST SECTION BELOW CONE

DURAN INC. RELINER STAINLESS STEEL ADJUSTABLE CLAMPING BRACKETS ATTACHED TO MANHOLE WALL WITH TWO (EACH) 3/8" STAINLESS STEEL WEDGE ANCHORS, STAINLESS STEEL WASHERS AND NUTS. MAXIMUM SPACING BETWEEN BRACKETS 3'; MINIMUM OF TWO BRACKETS PLACED

PVC PLASTIC DROP PIPE. LOCATION SHALL BE ONE PIPE SMALLER (6" MIN.) THAN PIPE ENTERING MANHOLE. LOCATION SHALL BE FLUSH WITH MANHOLE WALL AND NOT INTERFERE WITH MANHOLE STEPS.

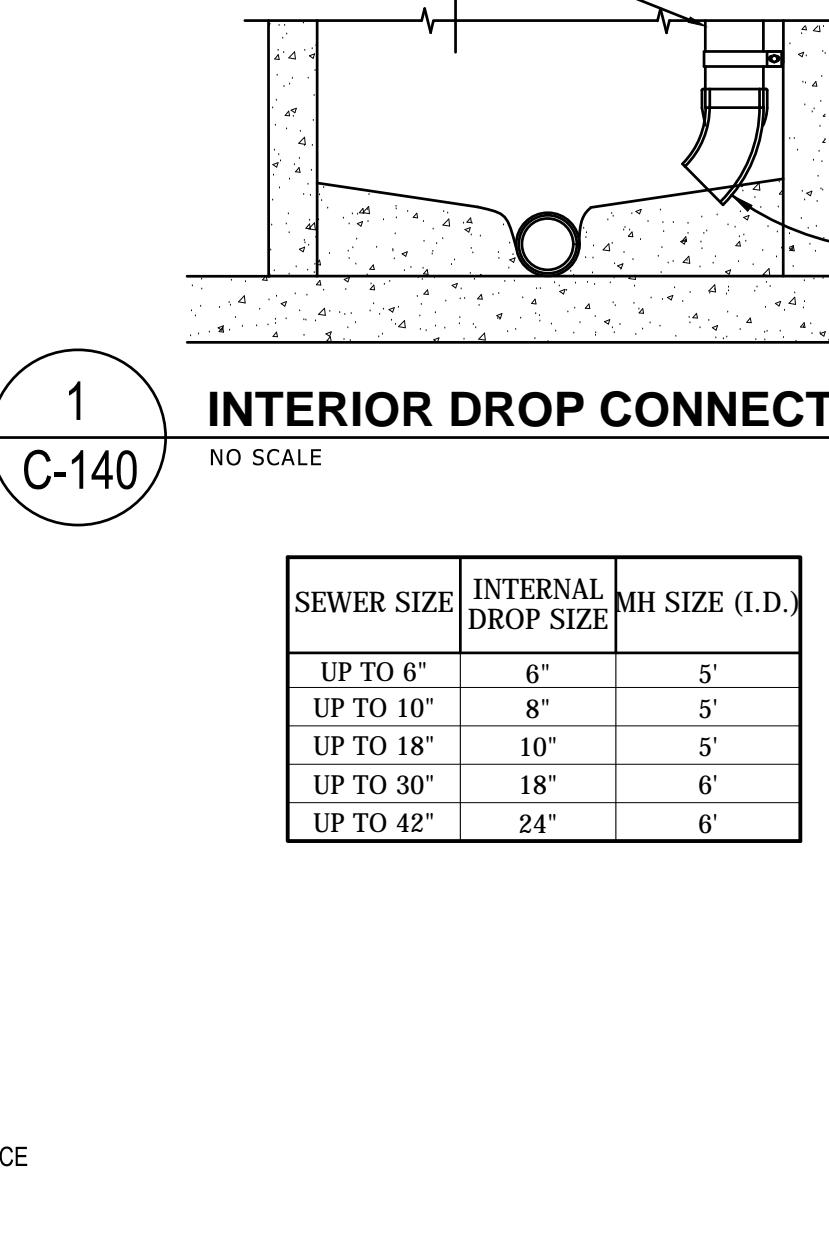
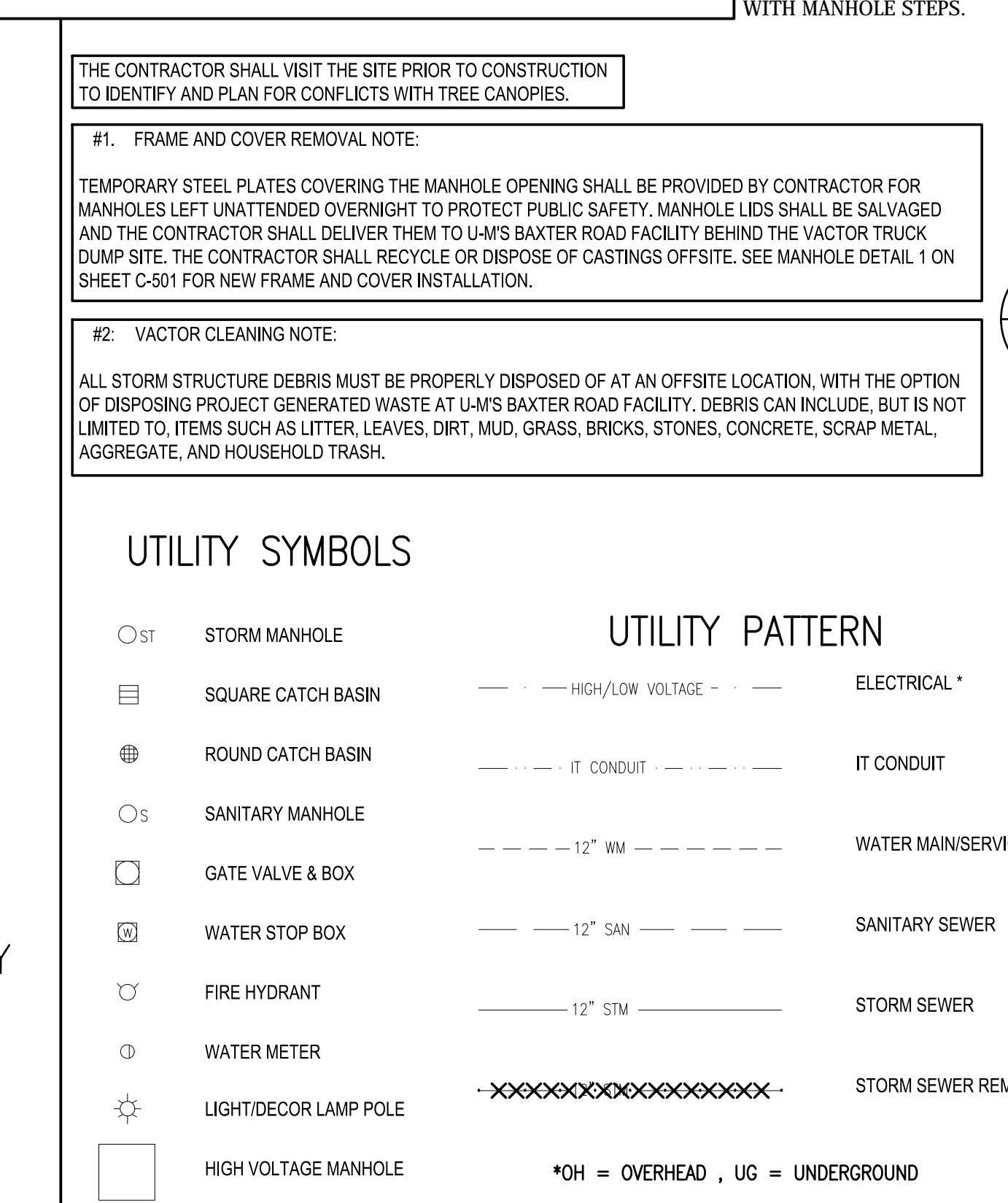
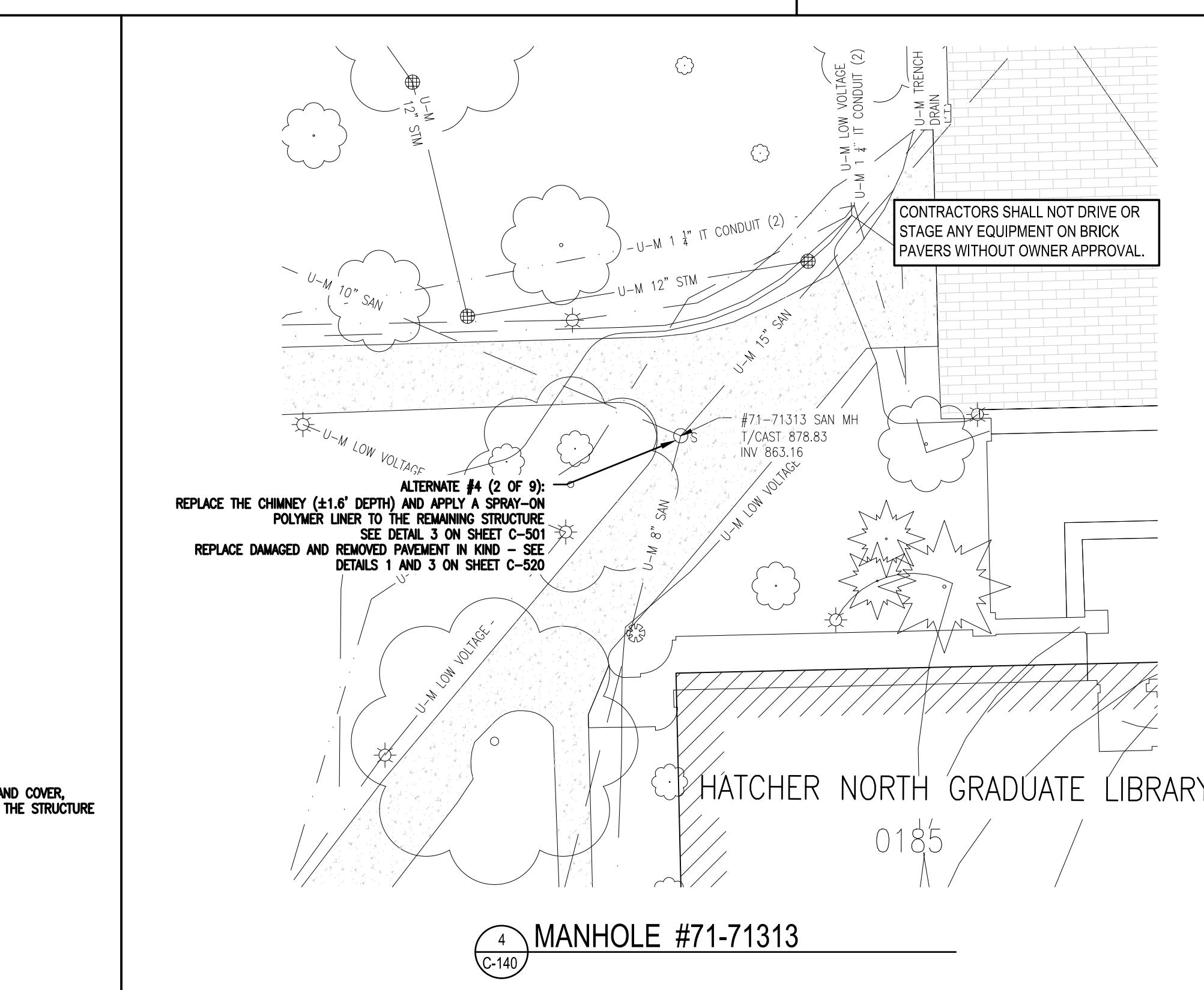
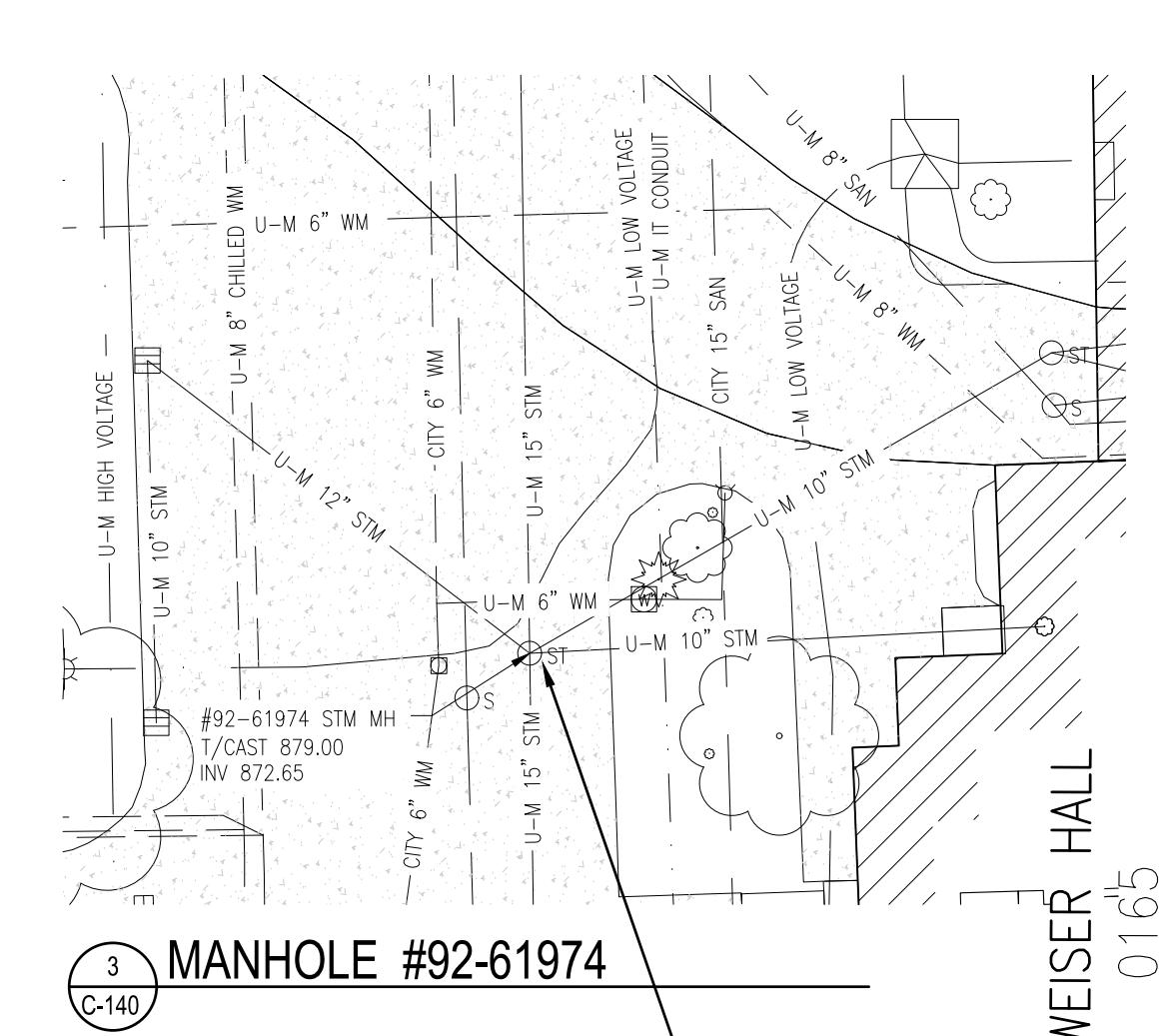
THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO CONSTRUCTION TO IDENTIFY AND PLAN FOR CONFLICTS WITH TREE CANOPIES.

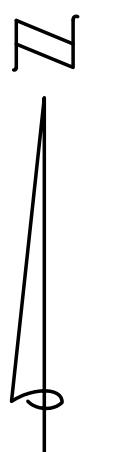
#1. FRAME AND COVER REMOVAL NOTE:
TEMPORARY STEEL PLATES COVERING THE MANHOLE OPENING SHALL BE PROVIDED BY CONTRACTOR FOR MANHOLES LEFT UNATTENDED OVERNIGHT TO PROTECT PUBLIC SAFETY. MANHOLE LIDS SHALL BE SALVAGED AND THE CONTRACTOR SHALL DELIVER THEM TO U-M'S BAXTER ROAD FACILITY. DUMP SITE. THE CONTRACTOR SHALL RECYCLE OR DISPOSE OF CASTINGS OFFSITE. SEE MANHOLE DETAIL 1 ON SHEET C-501 FOR NEW FRAME AND COVER INSTALLATION.

#2. VACTOR CLEANING NOTE:
ALL STORM STRUCTURE DEBRIS MUST BE PROPERLY DISPOSED OF AT AN OFFSITE LOCATION, WITH THE OPTION OF DISPOSING PROJECT GENERATED WASTE AT U-M'S BAXTER ROAD FACILITY. DEBRIS CAN INCLUDE, BUT IS NOT LIMITED TO, ITEMS SUCH AS LITTER, LEAVES, DIRT, MUD, GRASS, BRICKS, STONES, CONCRETE, SCRAP METAL, AGGREGATE, AND HOUSEHOLD TRASH.

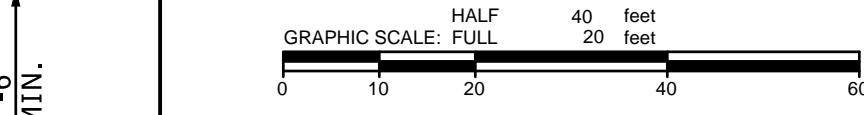
1
C-140
INTERIOR DROP CONNECTION
NO SCALE

SEWER SIZE	INTERNAL DROP SIZE	MH SIZE (I.D.)
UP TO 6"	6"	5'
UP TO 10"	8"	5'
UP TO 18"	10"	5'
UP TO 30"	18"	6'
UP TO 42"	24"	6'





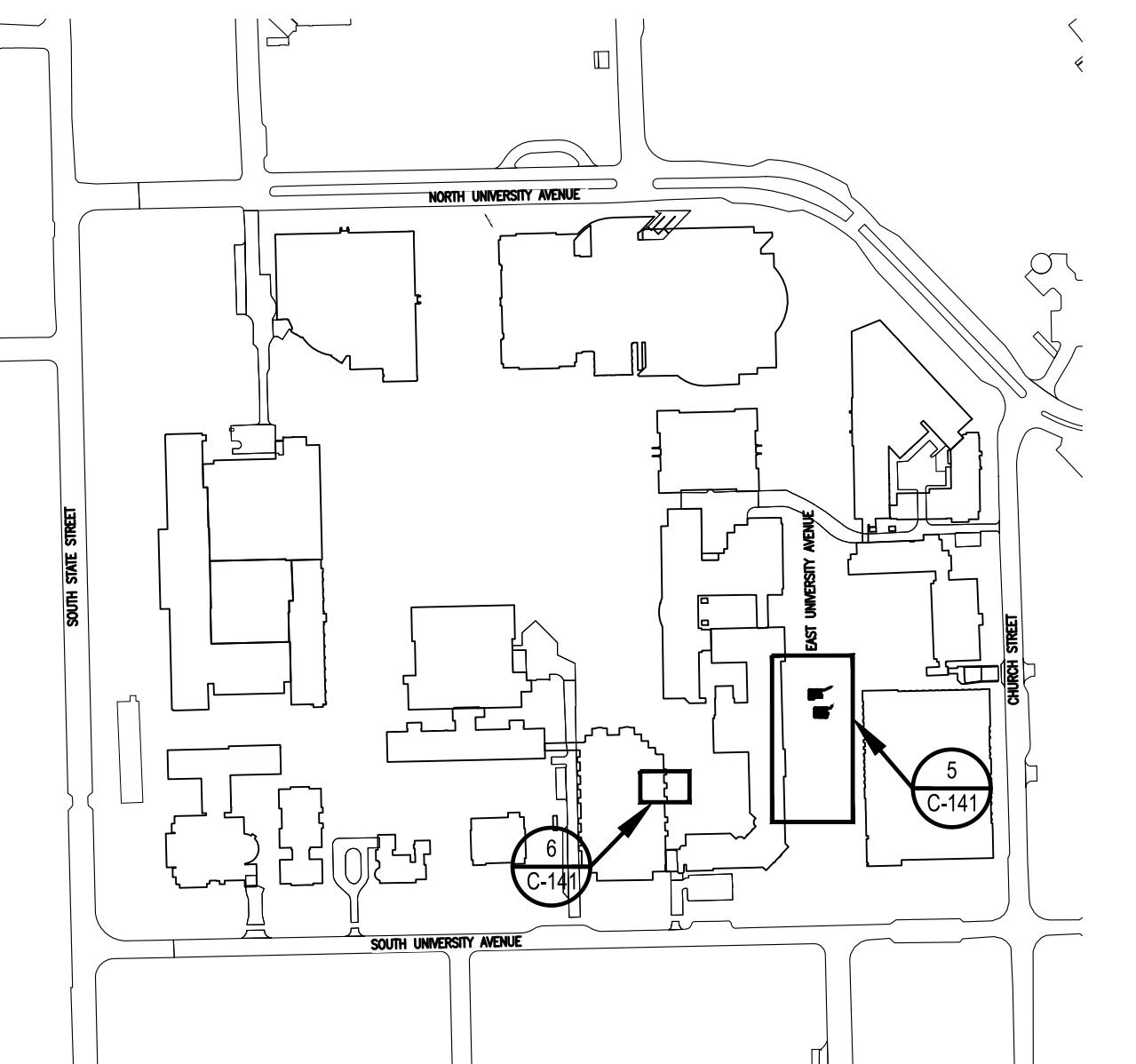
Know what's below.
Call before you dig.



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#3: STRUCTURE REMOVAL NOTE:
CASTING ADJUSTING RINGS, CONE, RISER SECTIONS AND BASE OF THE STRUCTURE SHALL ALL BE REMOVED. PROPER OFFSITE DISPOSAL OF THE STORM STRUCTURE IS THE RESPONSIBILITY OF THE CONTRACTOR. PROVIDE ANY TEMPORARY SHEETING, SHORING, BRACING, AND Dewatering THAT MAY BE NECESSARY. IF THE OWNER WISHES TO RETAIN THE SALVAGED CASTINGS, THEN THE CONTRACTOR SHALL DELIVER THEM TO THE OWNER'S DESIGNATED SITE, OTHERWISE, THE CONTRACTOR SHALL DISPOSE OF THE CASTINGS OFF-SITE.



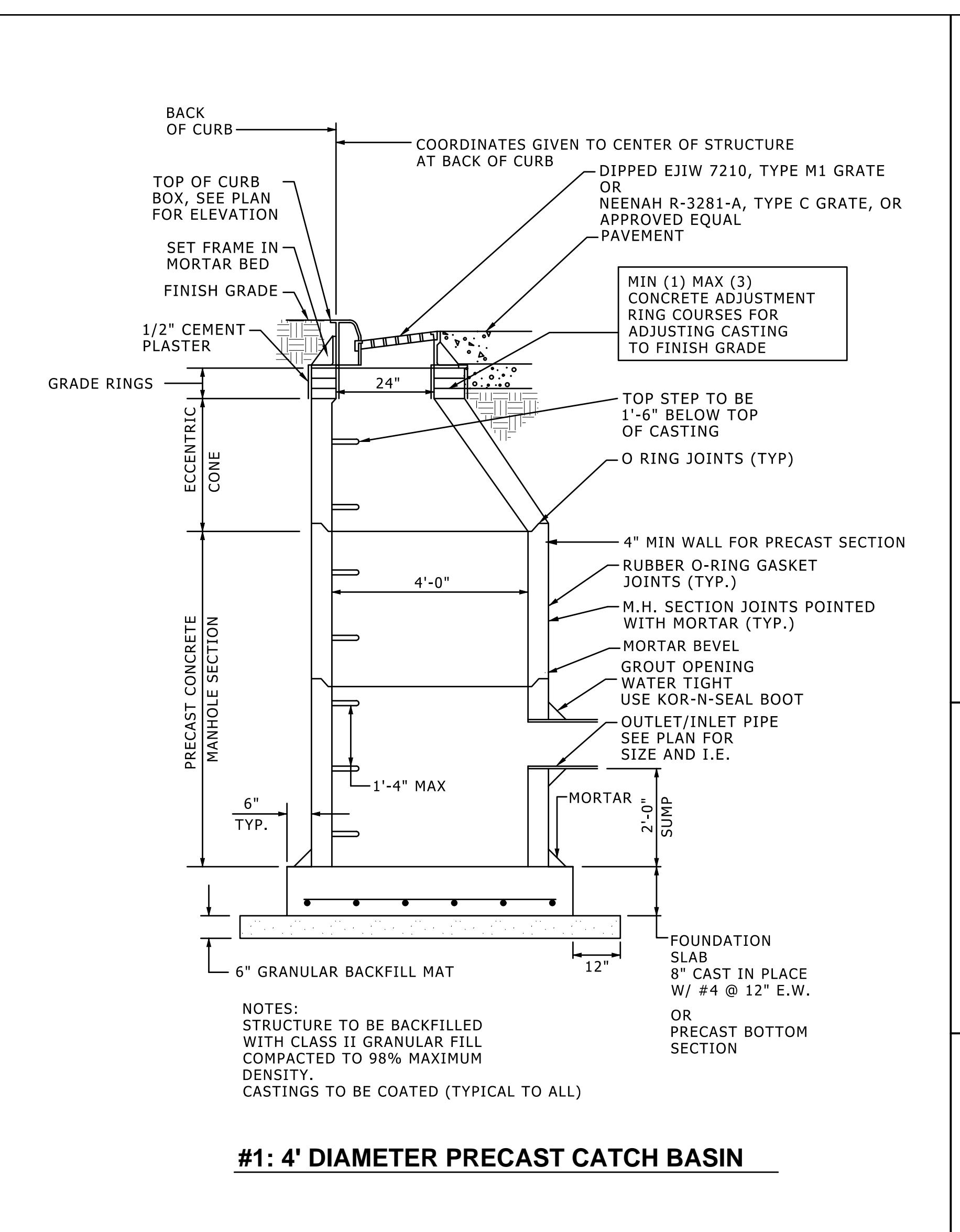
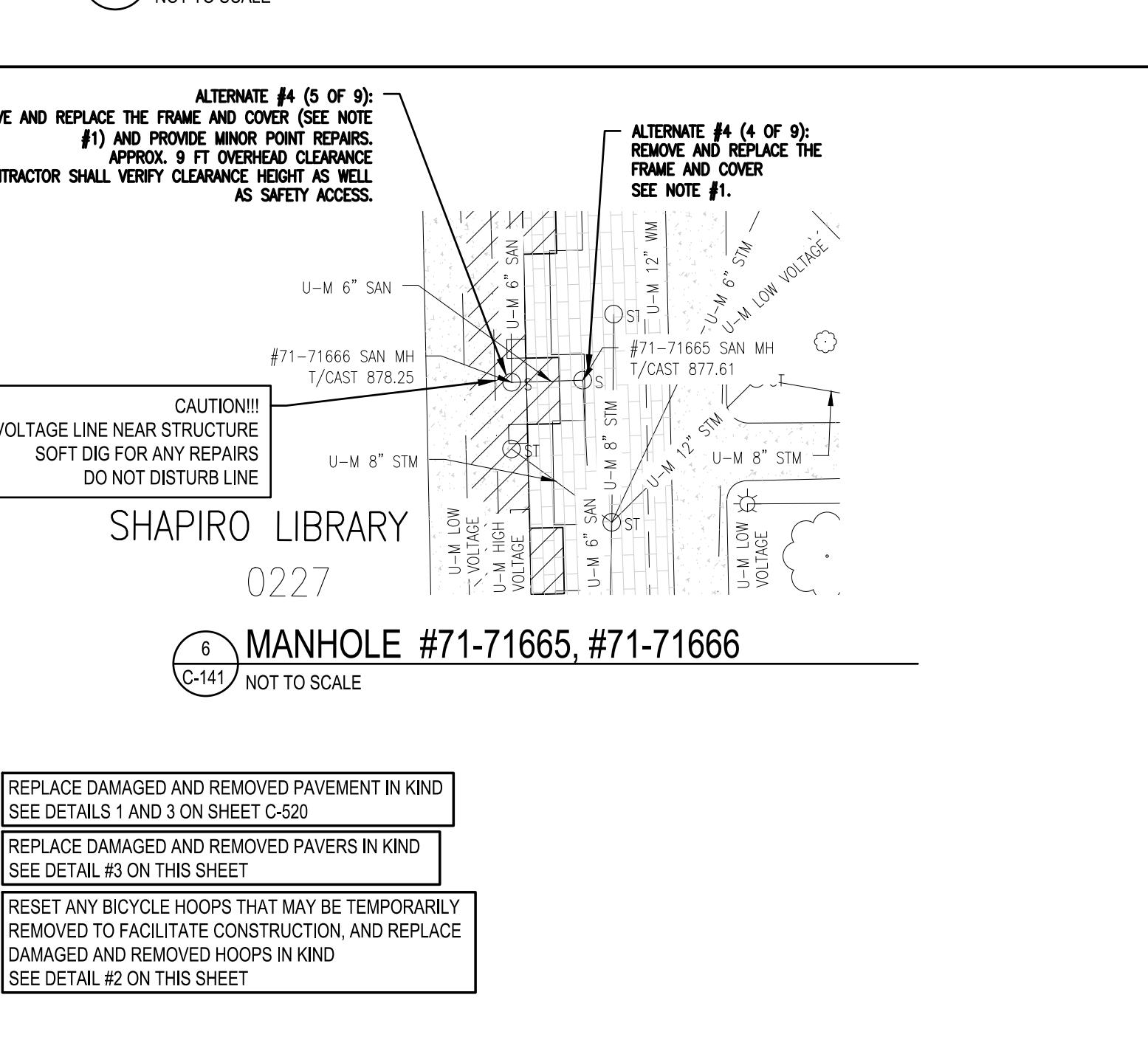
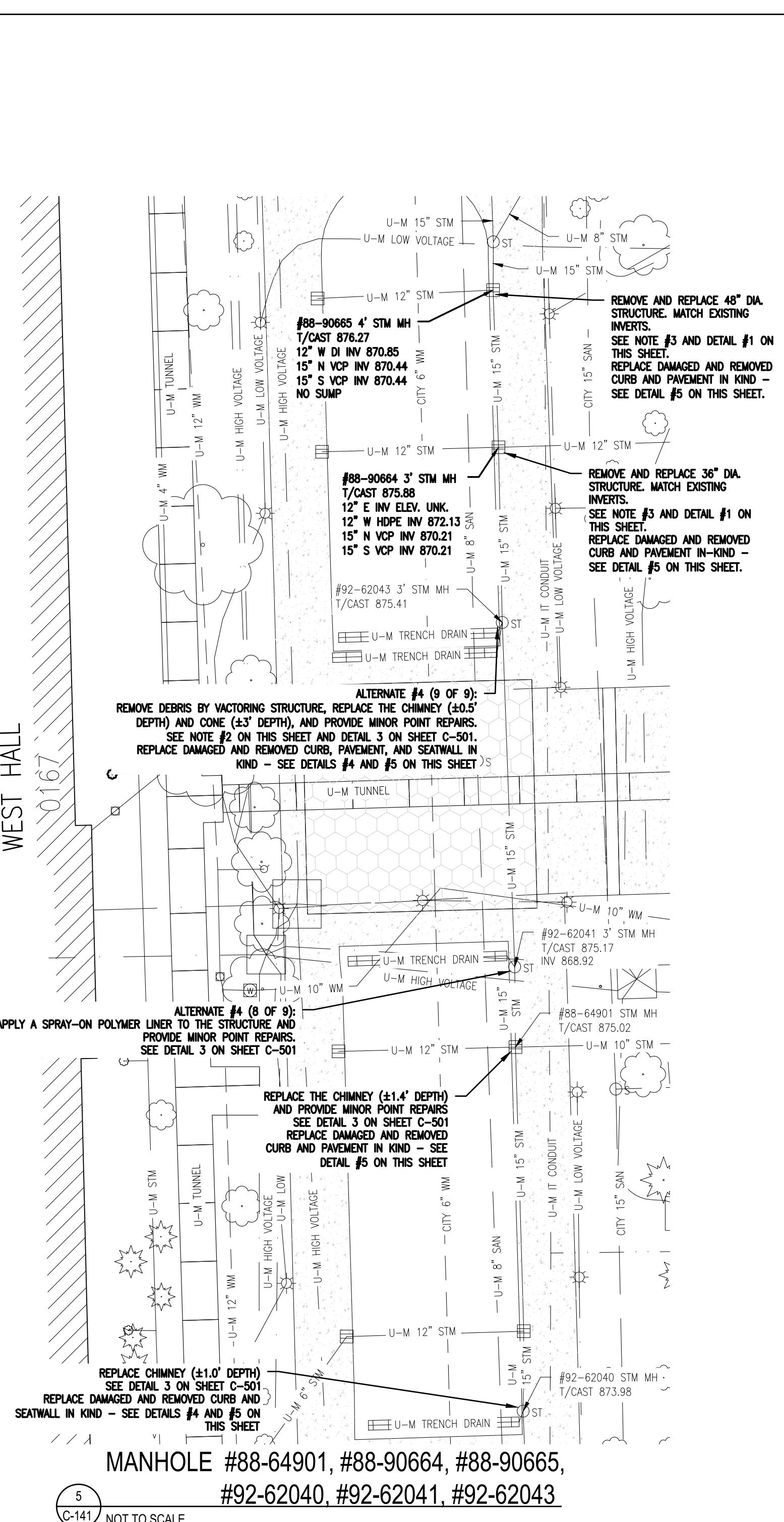
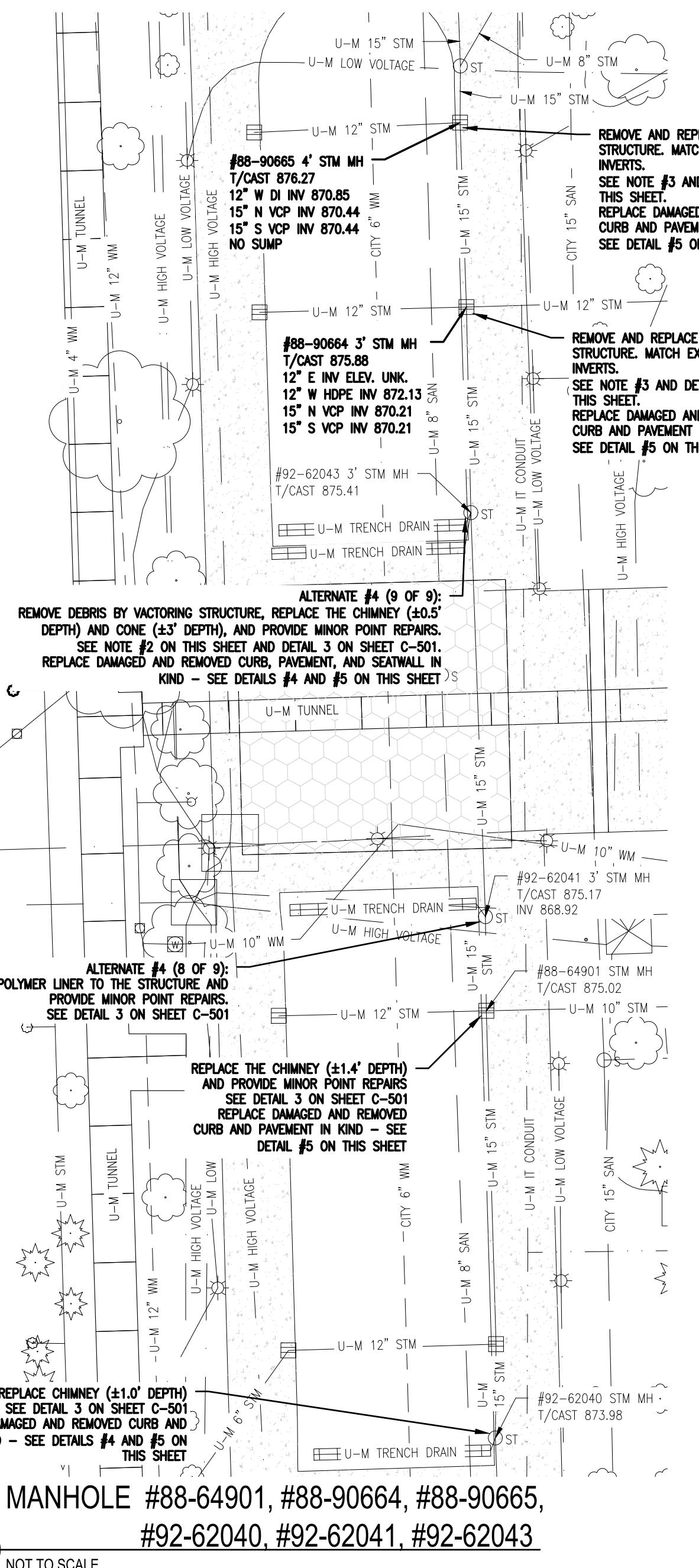
KEY PLAN
NOT TO SCALE

UTILITY SYMBOLS

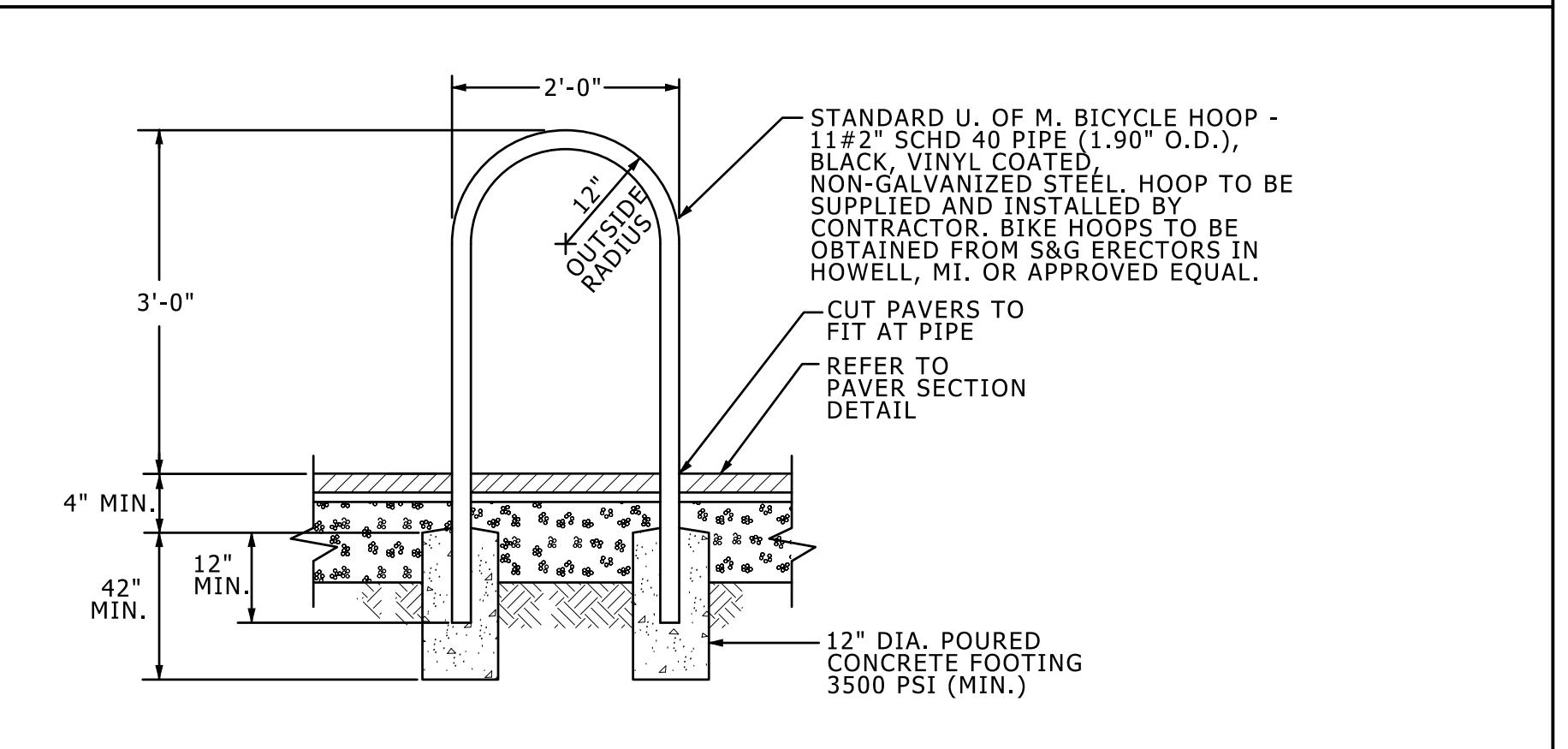
○ ST	STORM MANHOLE
□	SQUARE CATCH BASIN
●	ROUND CATCH BASIN
○ S	SANITARY MANHOLE
□ G	GATE VALVE & BOX
○ W	WATER STOP BOX
○ F	FIRE HYDRANT
○ W	WATER METER
○ L	LIGHT/DECOR LAMP POLE
□ H	HIGH VOLTAGE MANHOLE

UTILITY PATTERN

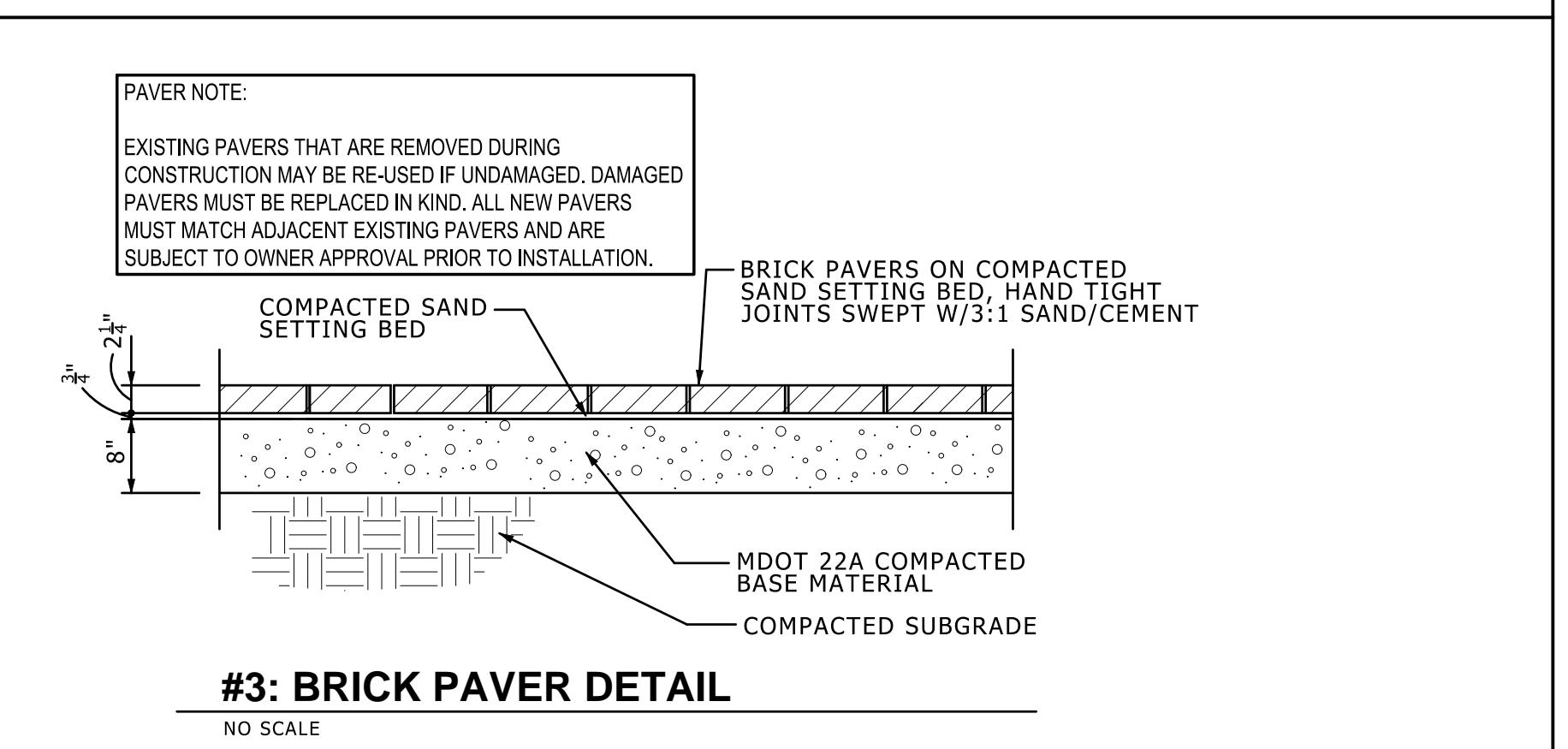
— — HIGH/LOW VOLTAGE — —	ELECTRICAL *
— — IT CONDUIT — —	IT CONDUIT
— — 12" WM — —	WATER MAIN/SERVICE
— — 12" SAN — —	SANITARY SEWER
— — 12" STM — —	STORM SEWER
- XXXXXXXX -	STORM SEWER REMOVAL



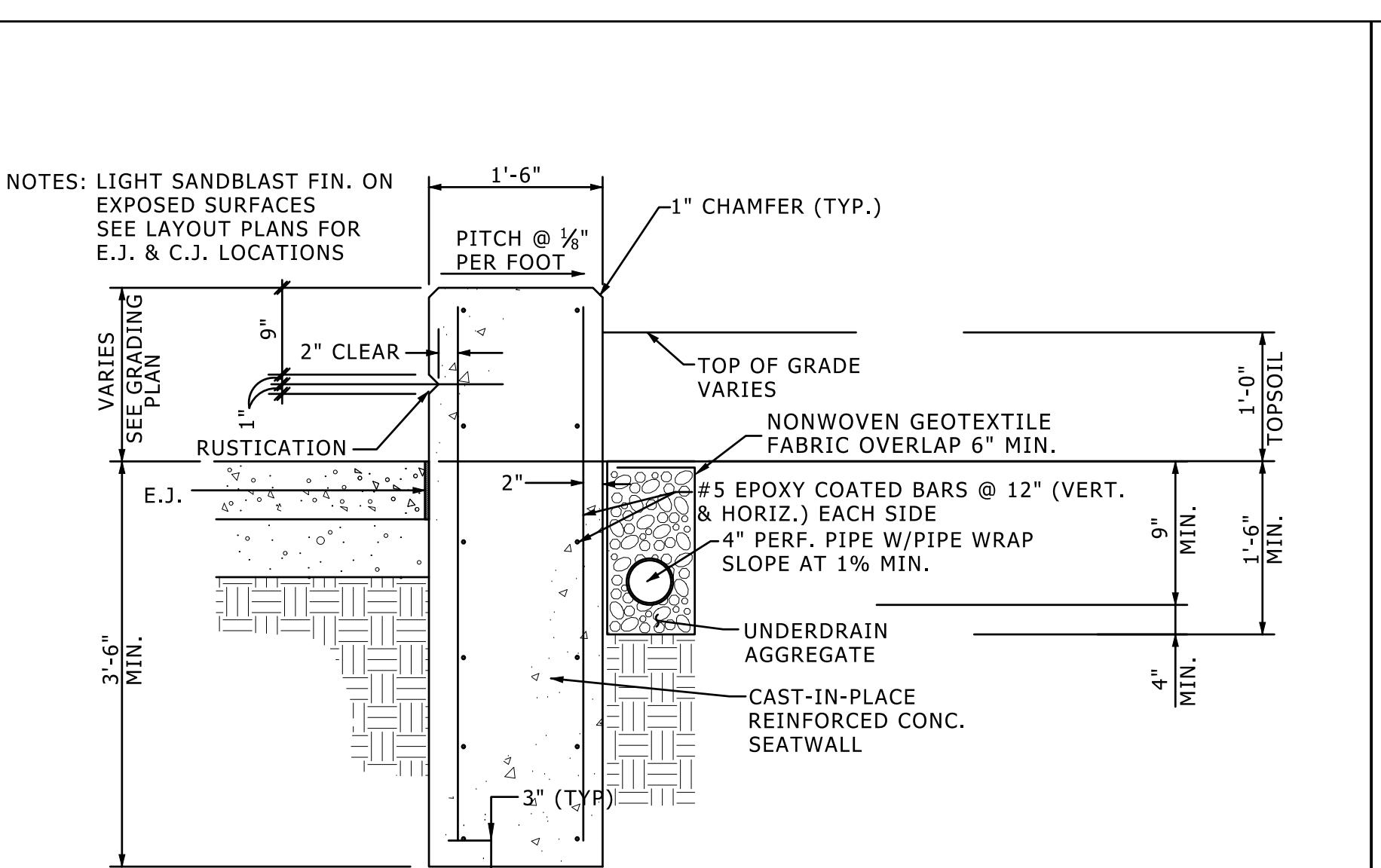
#1: 4' DIAMETER PRECAST CATCH BASIN



#2: BICYCLE HOOP - PAVERS

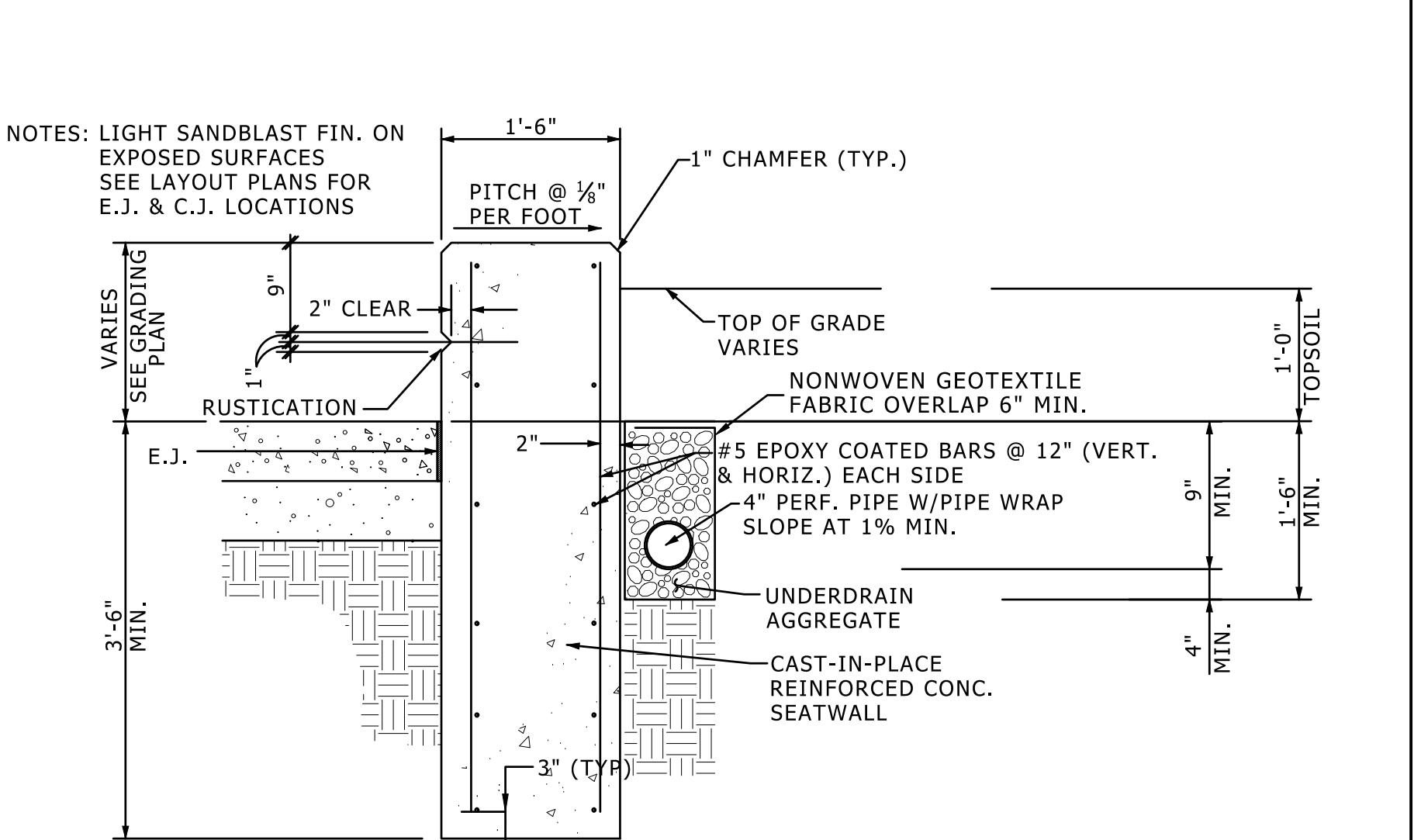


#3: BRICK PAVER DETAIL



#4: TYPICAL CONCRETE SEATWALL

NO SCALE



#5: STRAIGHT CURB AT PLANTING AREA

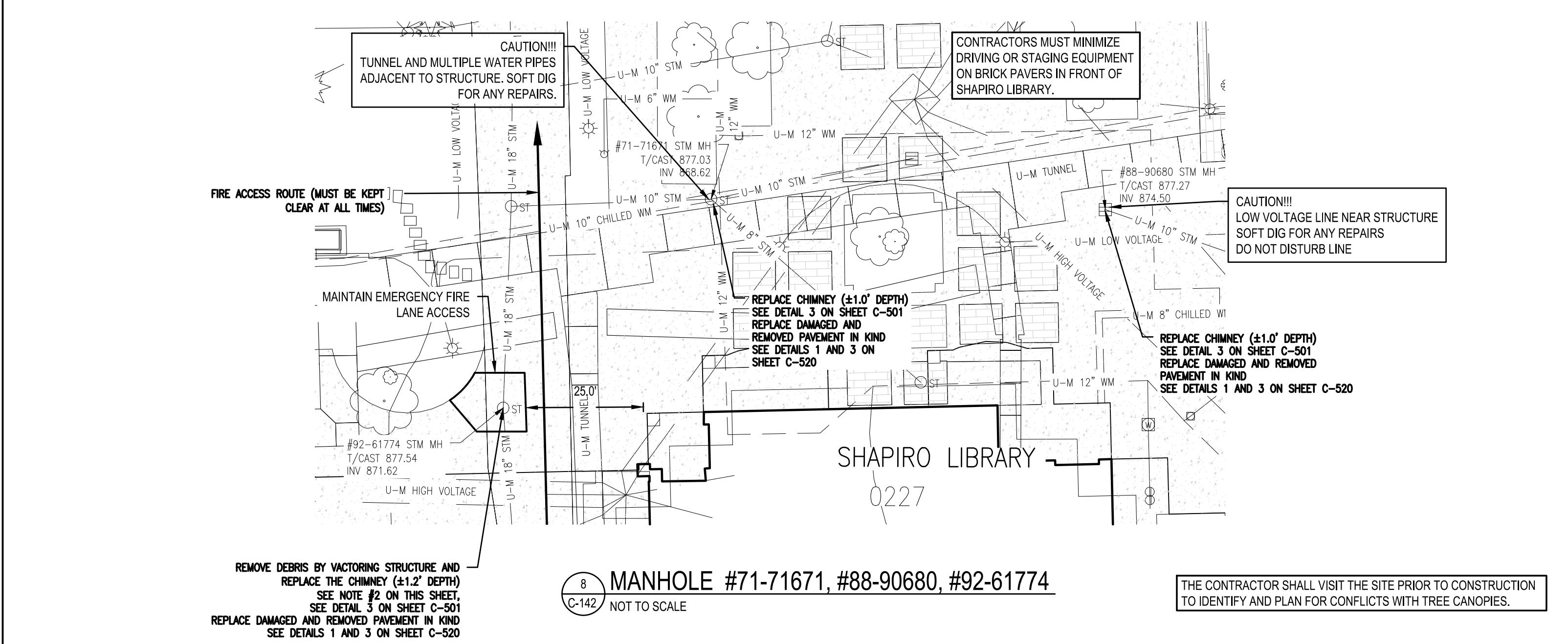
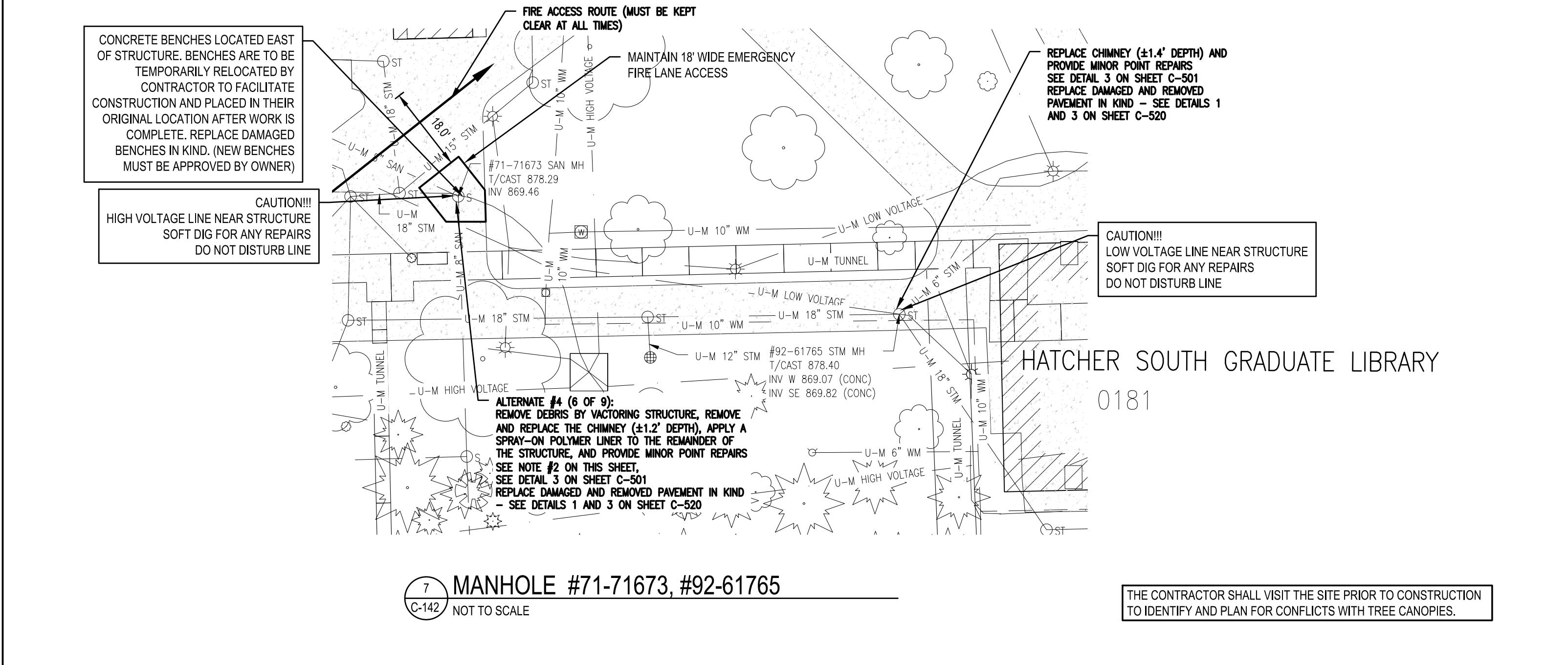
NO SCALE

NOTES:
1) AT 90° ANGLE POINTS IN THE CURB LINE, PLACE EXPANSION JOINTS IN THE "LONG LEG" - 18" FROM THE BACK-OF-CURB OF THE "SHORT LEG".
2) DOWEL CURB PATCHES TO ADJACENT CURB
3) PLACE CONTROL JOINTS EVERY 10 FEET
4) ANY CURB REMOVED AS PART OF CONSTRUCTION SHALL BE PROPERLY DISPOSED BY THE CONTRACTOR.
5) CURB CONSTRUCTION INCLUDES EXCAVATION, SUBGRADE COMPACTION, BACKFILLING BEHIND THE CURB, DISPOSAL OF EXCESS MATERIALS, JOINTS, AND CURING COMPOUND.

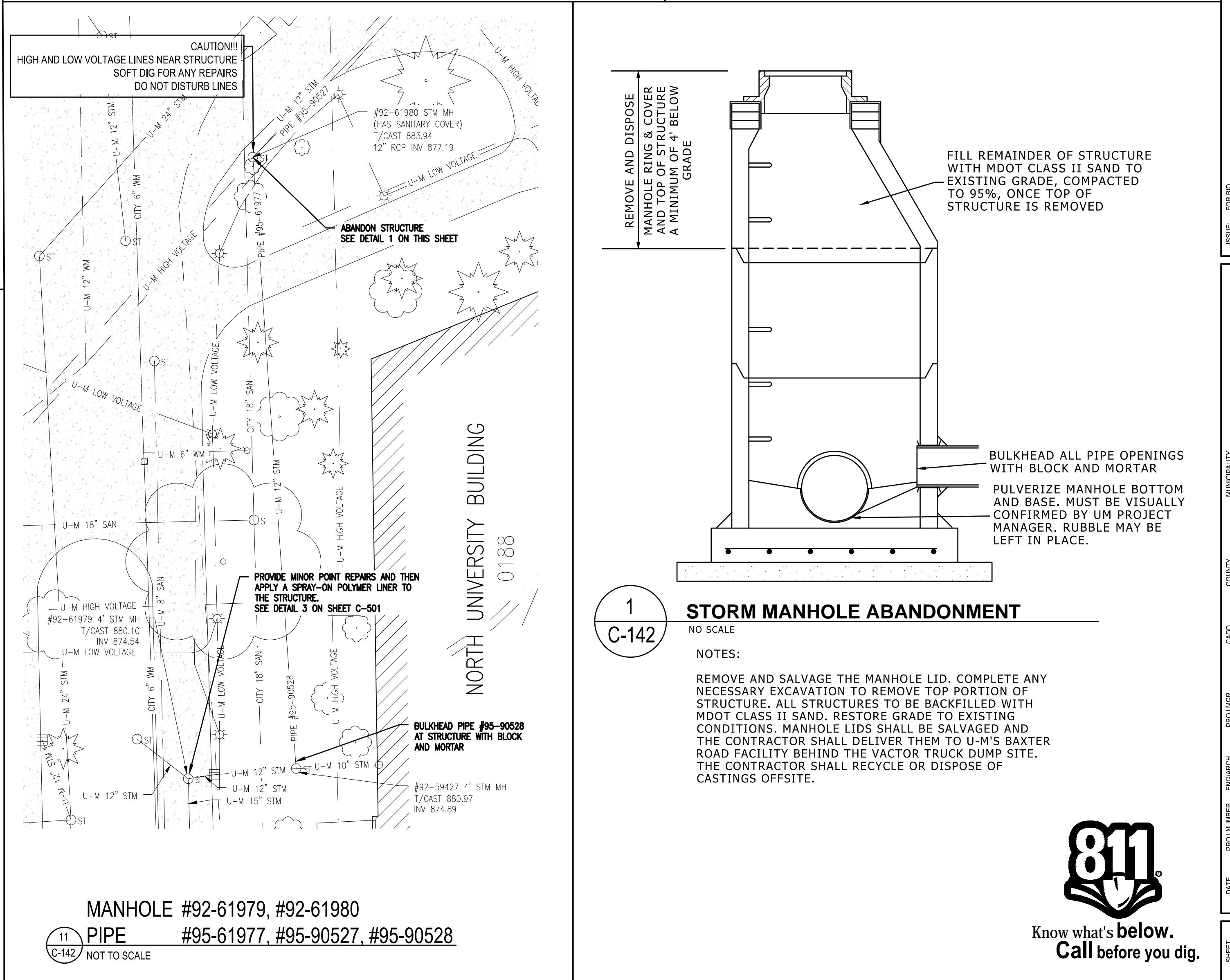
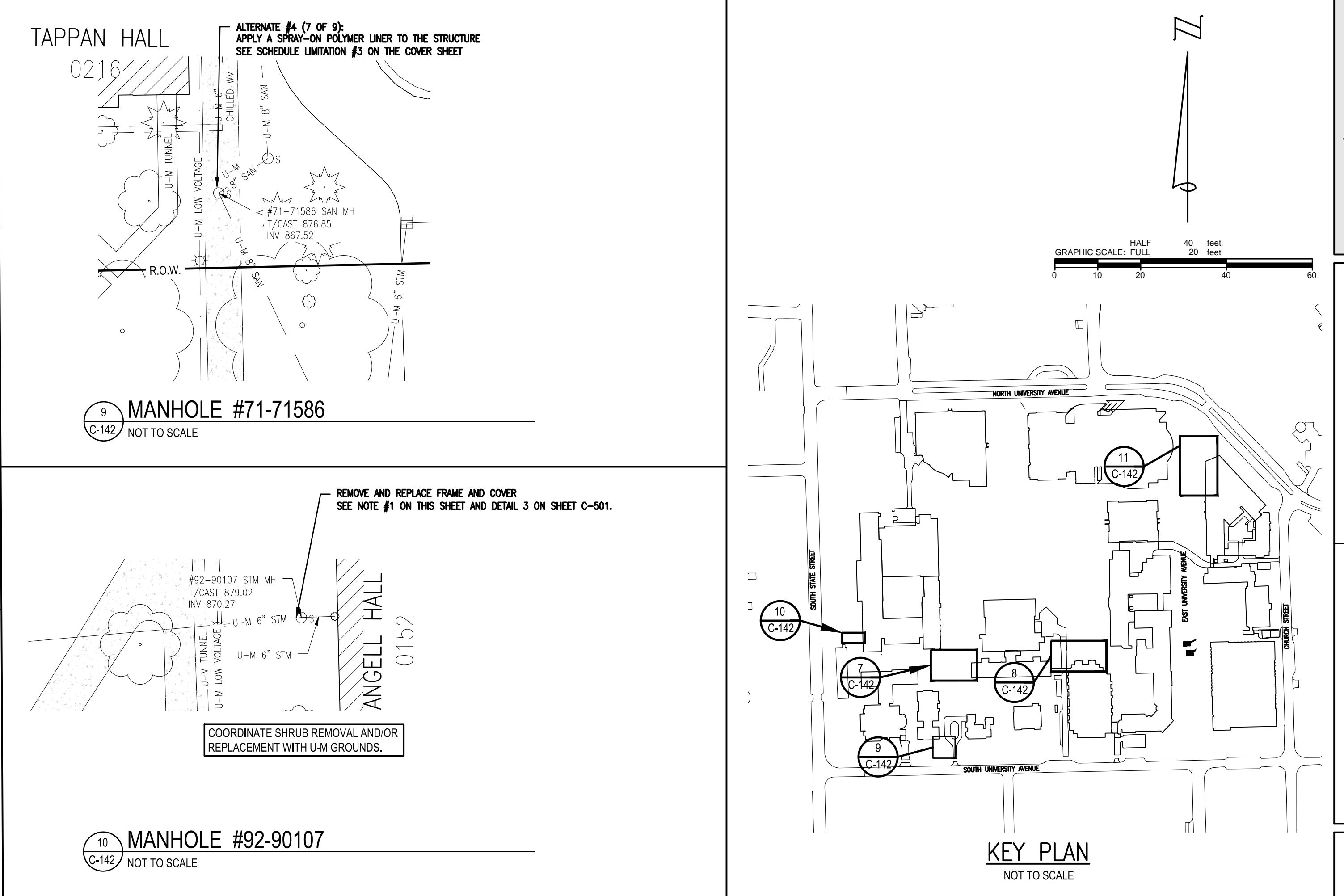
UTILITY PATTERN

— — HIGH/LOW VOLTAGE — —	ELECTRICAL *
— — IT CONDUIT — —	IT CONDUIT
— — 12" WM — —	WATER MAIN/SERVICE
— — 12" SAN — —	SANITARY SEWER
— — 12" STM — —	STORM SEWER
- XXXXXXXX -	STORM SEWER REMOVAL

*OH = OVERHEAD , UG = UNDERGROUND

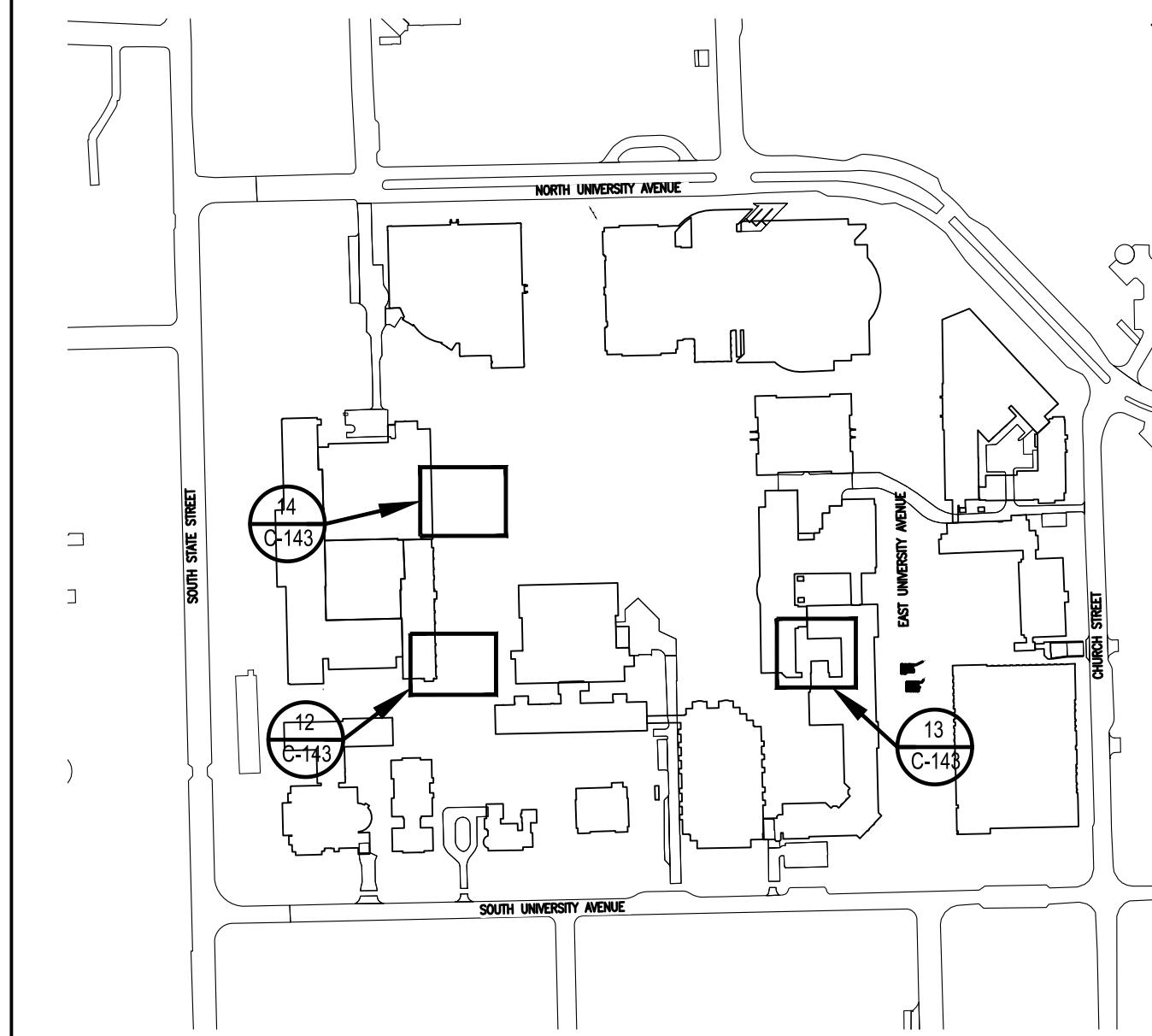
**UTILITY SYMBOLS**

UTILITY PATTERN	
○ ST	STORM MANHOLE
□	SQUARE CATCH BASIN
●	ROUND CATCH BASIN
○ S	SANITARY MANHOLE
□	GATE VALVE & BOX
○	WATER STOP BOX
○	FIRE HYDRANT
○	WATER METER
○	LIGHT/DECOR LAMP POLE
□	HIGH VOLTAGE MANHOLE
*OH = OVERHEAD , UG = UNDERGROUND	





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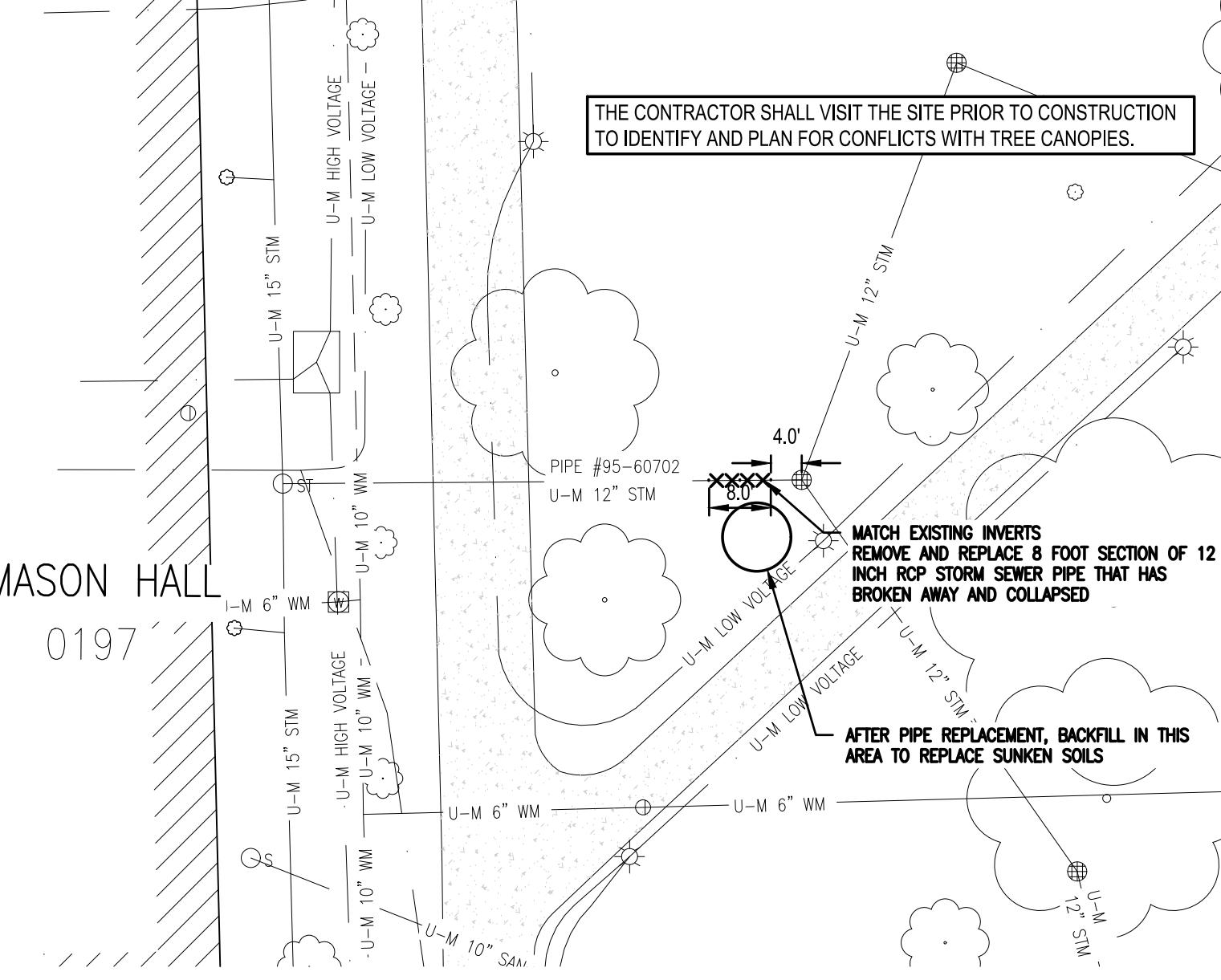


KEY PLAN

NOT TO SCALE

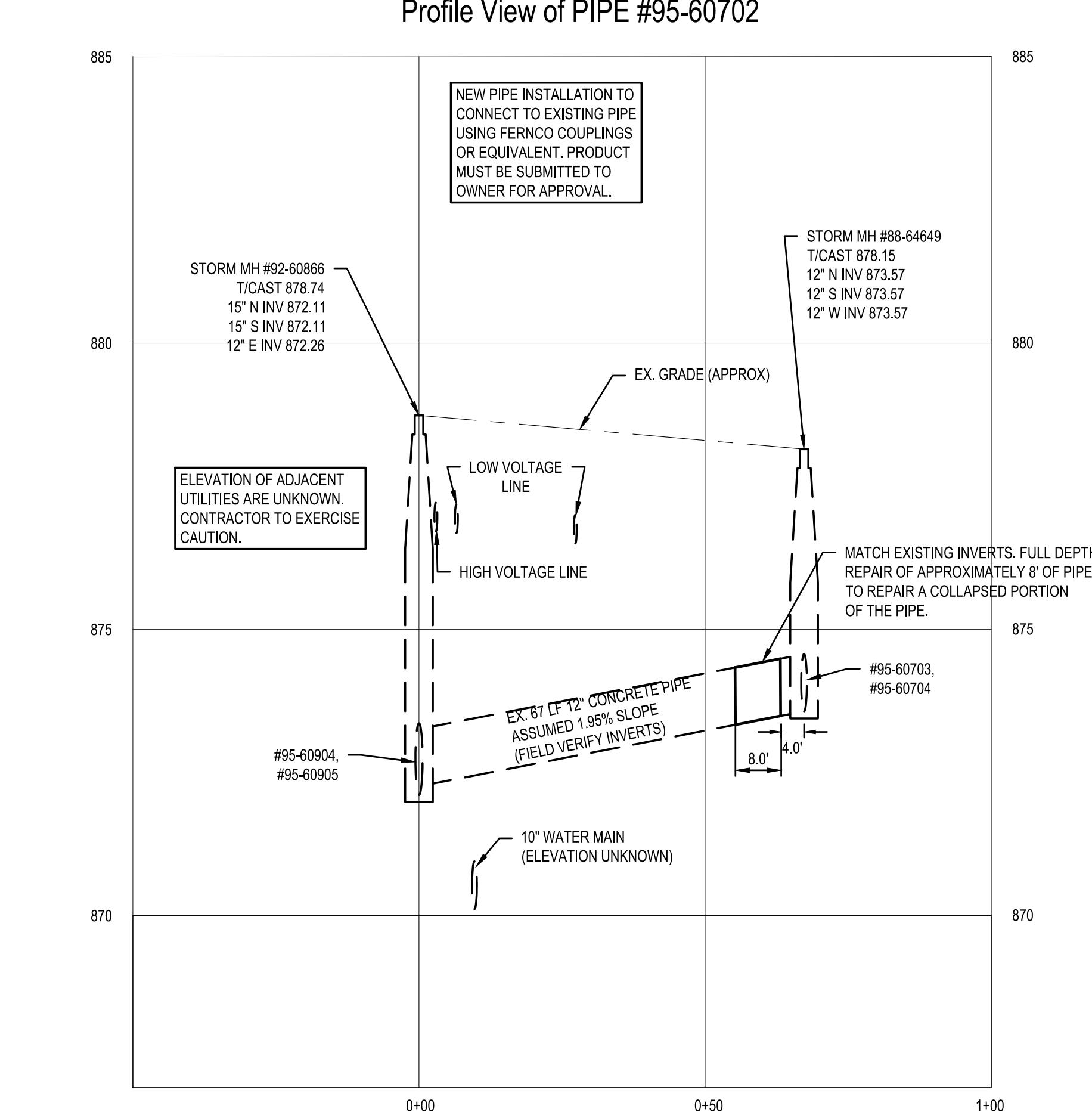
NOT TO SCALE

SEE NOTES AND DETAILS ON SHEET C-501 FOR PIPE INSTALLATION



PIPE #95-60702
NOT TO SCALE

C-143 NOT TO SCALE

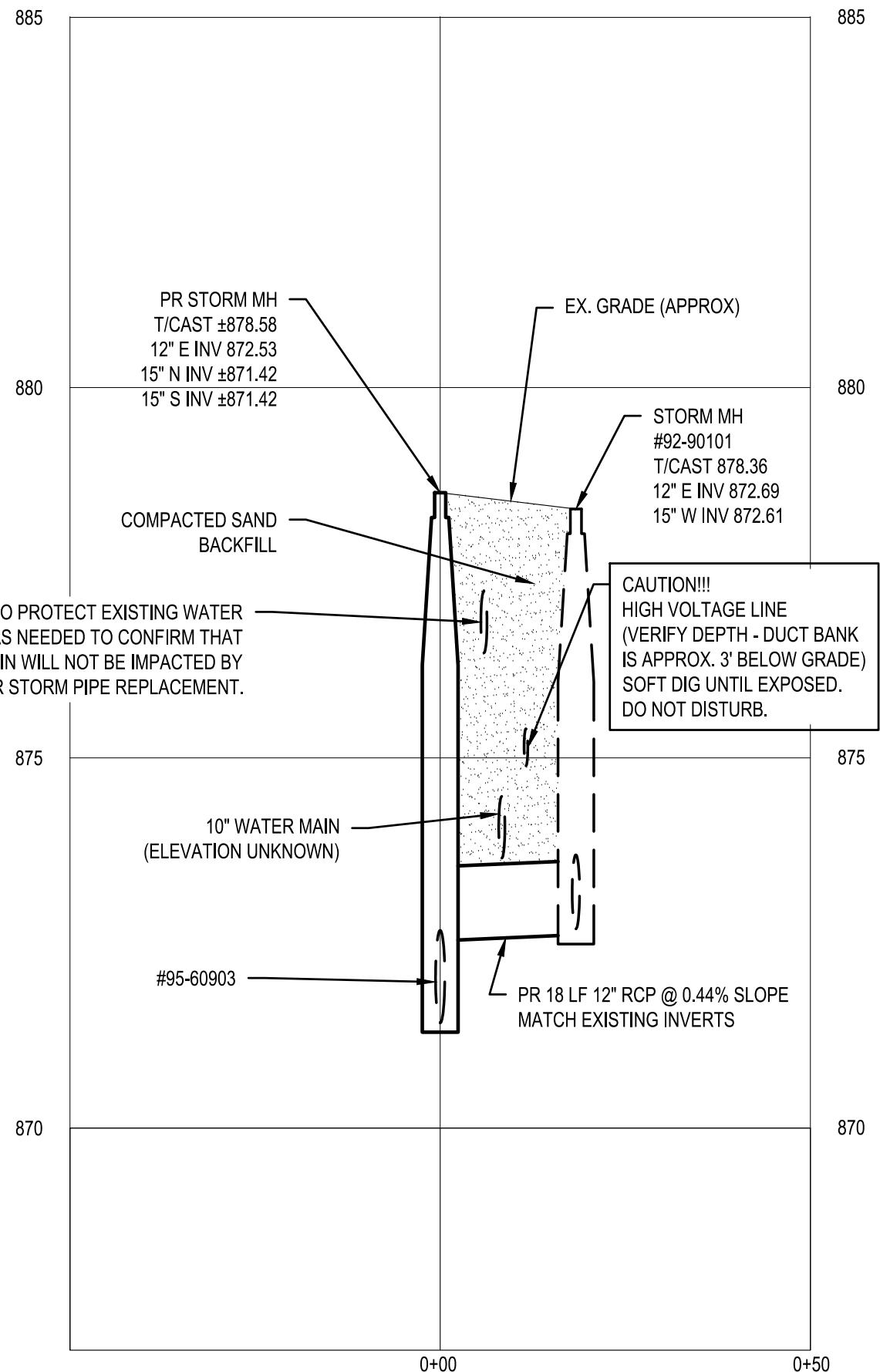


Profile View of PIPE #95-60702

PIPE #95-90658

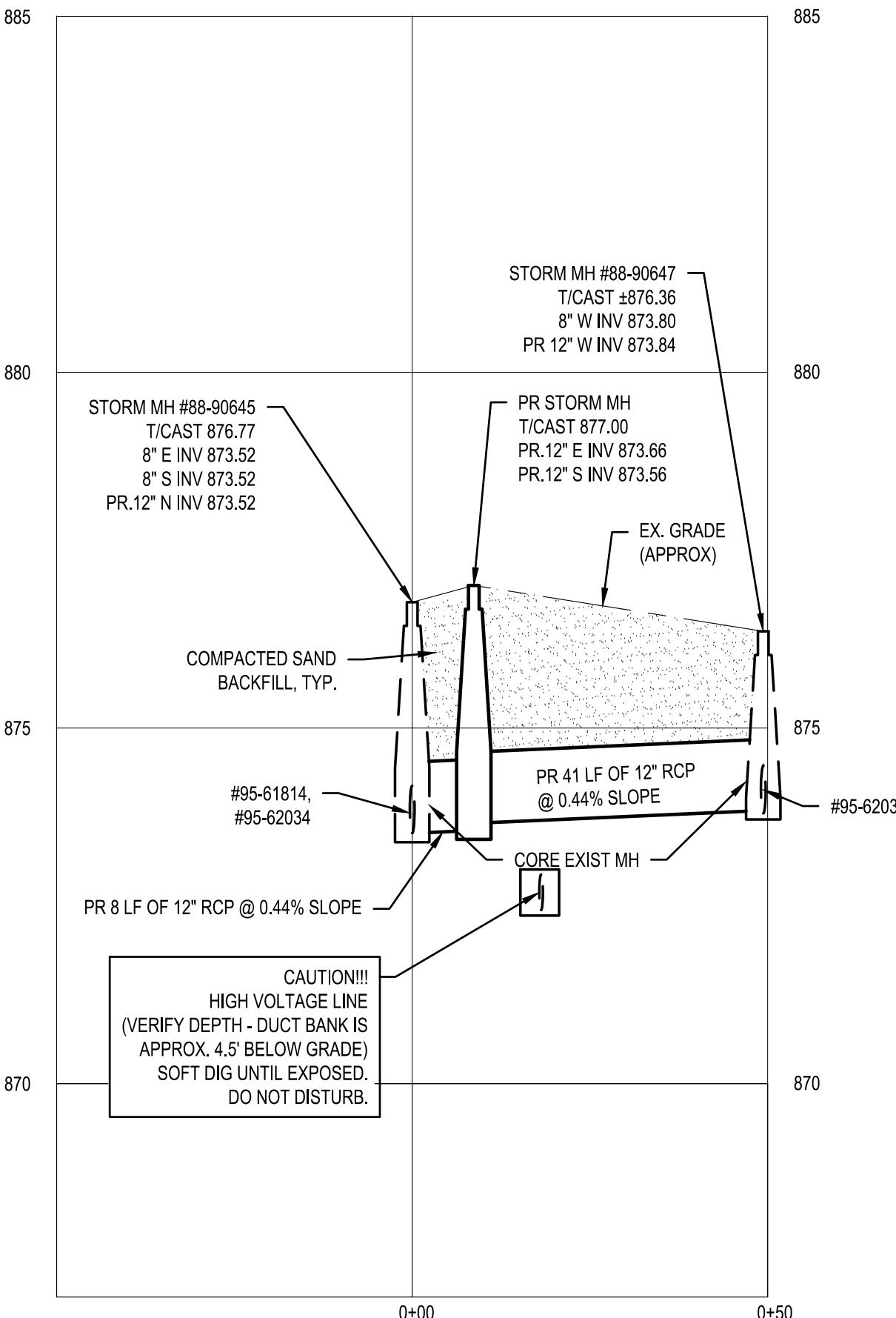
C-143 NOT TO SCALE

Profile View of PIPE #95-90658



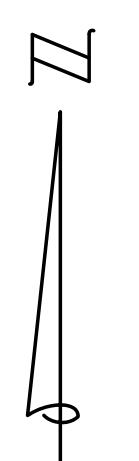
Profile View of PIPE #95-62034

L-143 NOT TO SCALE



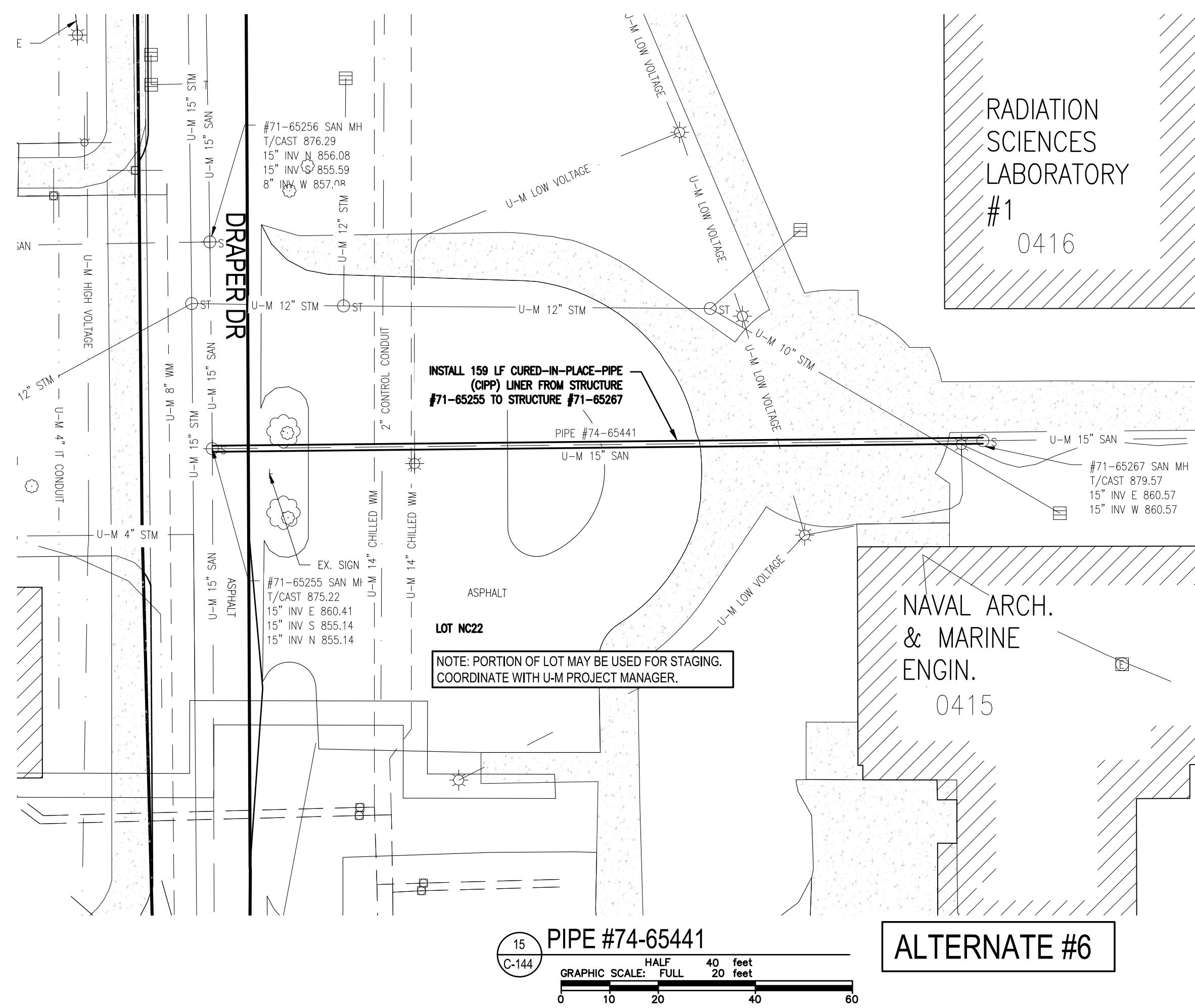
UTILITY SYMBOLS

UTILITY PATTERN			
○ ST	STORM MANHOLE		
□	SQUARE CATCH BASIN	— · — HIGH/LOW VOLTAGE — · —	ELECTRICAL *
●	ROUND CATCH BASIN	— · — IT CONDUIT · — · —	IT CONDUIT
○ s	SANITARY MANHOLE		
□	GATE VALVE & BOX	— — — 12" WM — — — —	WATER MAIN/SERVICE
□ w	WATER STOP BOX	— — — 12" SAN — — —	SANITARY SEWER
○	FIRE HYDRANT	— — — 12" STM — — —	STORM SEWER
○	WATER METER		
○	LIGHT/DECOR LAMP POLE	→XXXXXX→XXXXXX→XXXXXX→	STORM SEWER REMOVAL
	HIGH VOLTAGE MANHOLE	*OH = OVERHEAD , UG = UNDERGROUND	

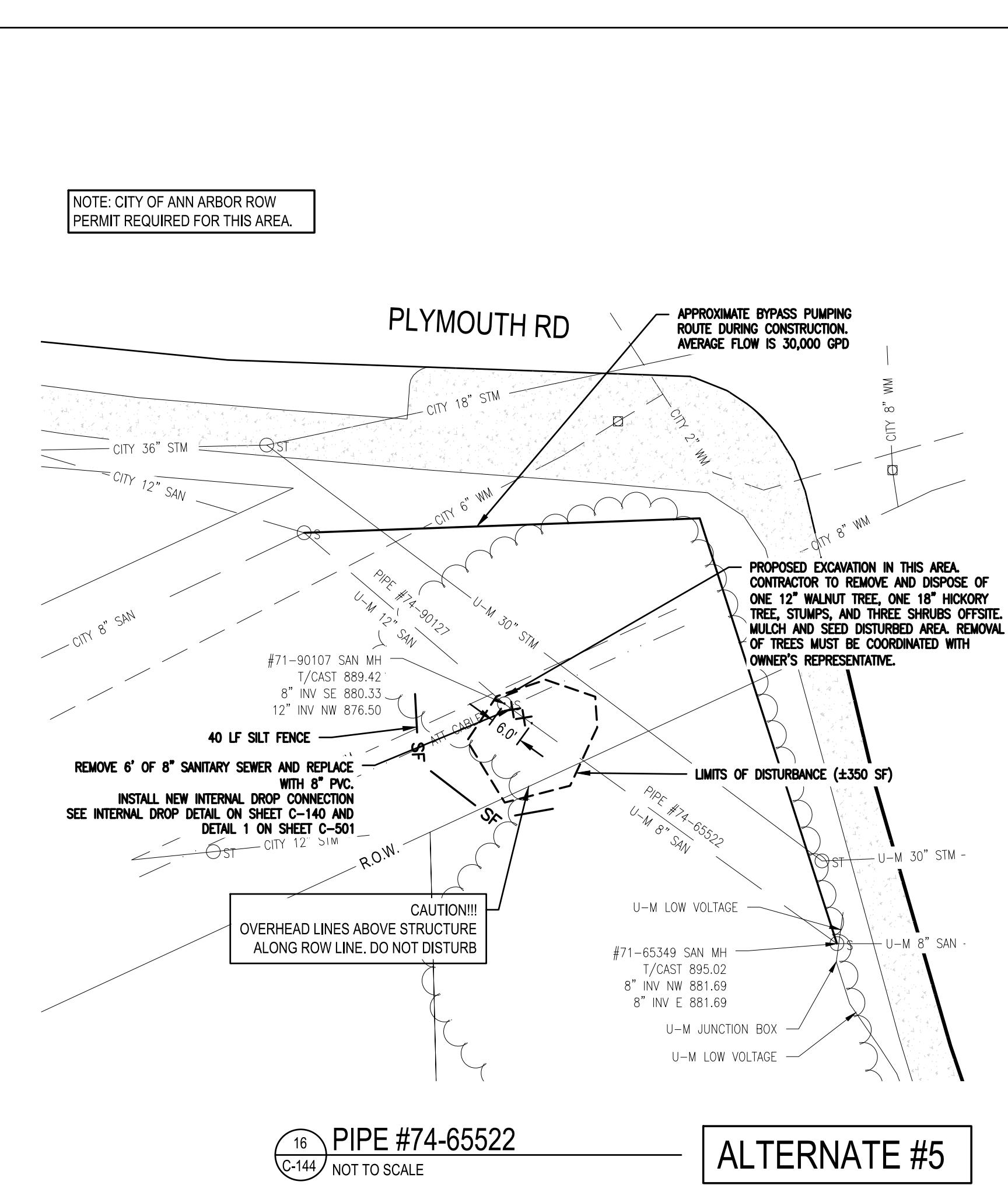
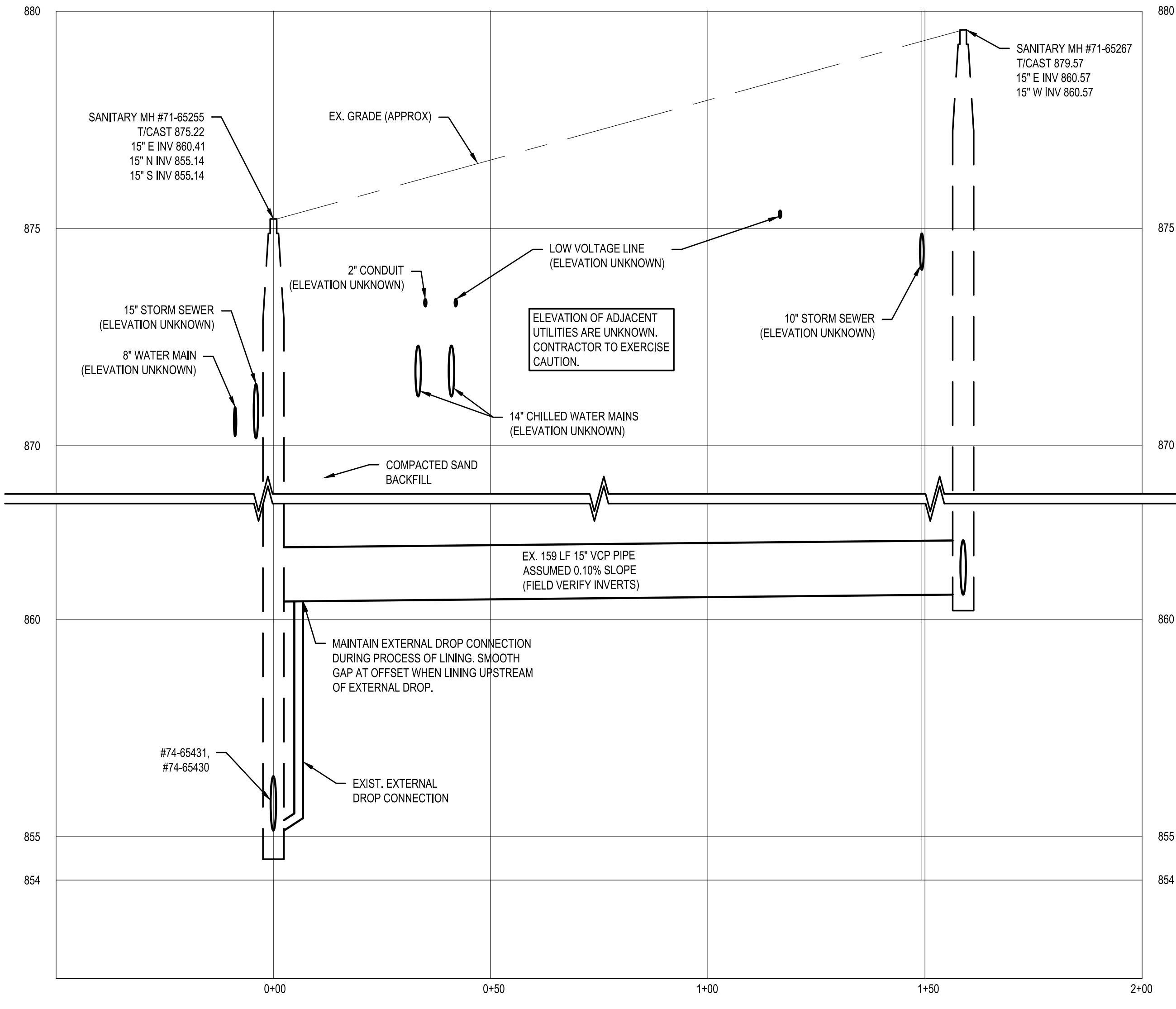


A horizontal graphic scale bar with a black line and numerical markings from 0 to 60 in increments of 10. Above the scale, the text "GRAPHIC SCALE: FULL" is centered above the first 10 units. To the right of the scale, the word "feet" is written below the 40 and 20 markings, indicating the unit of measurement.

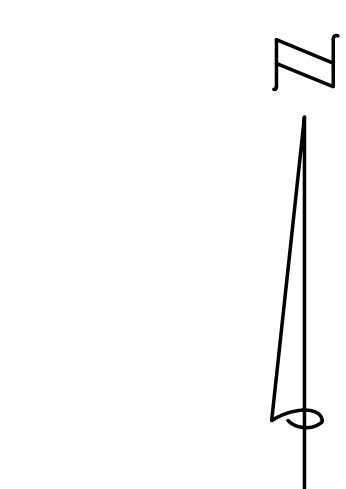
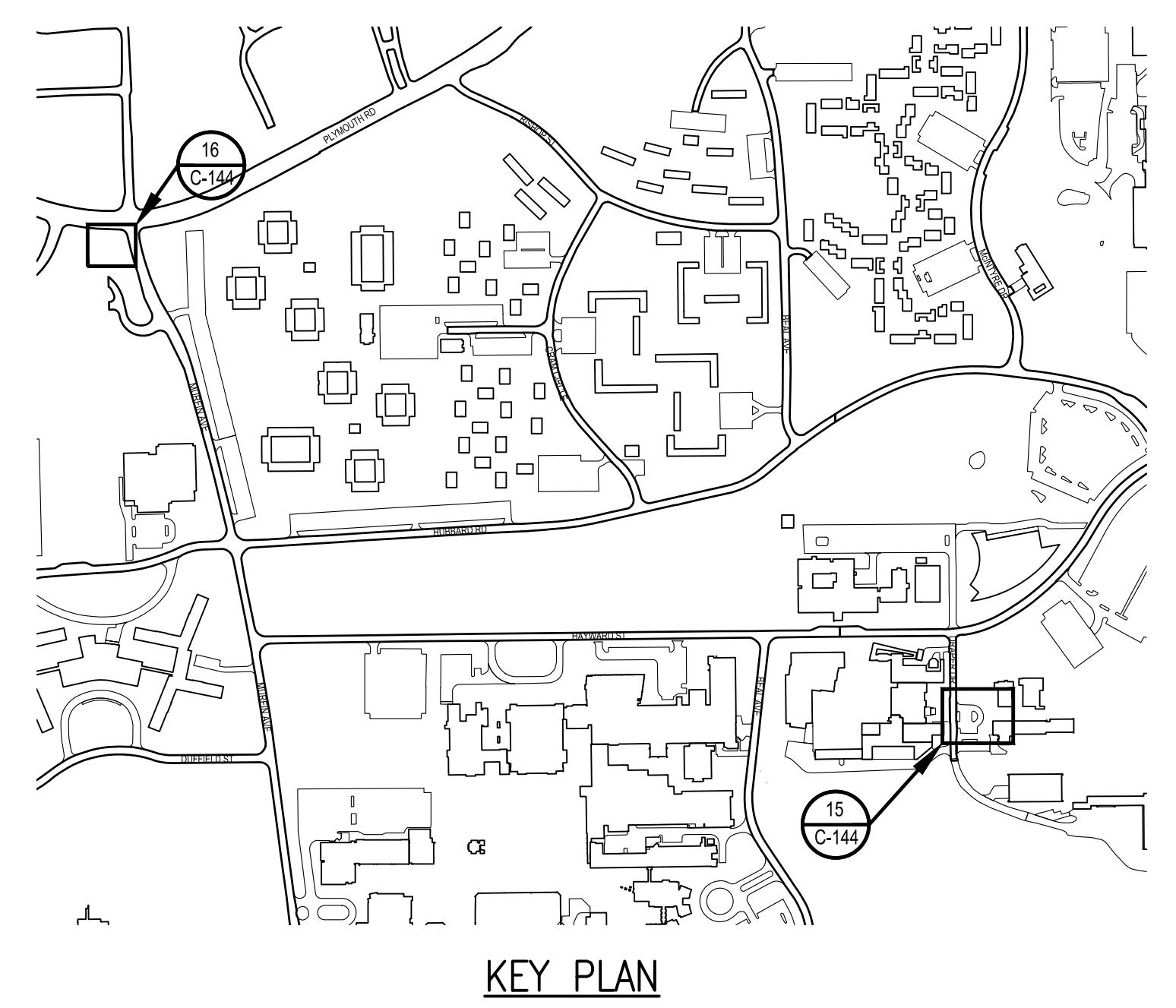
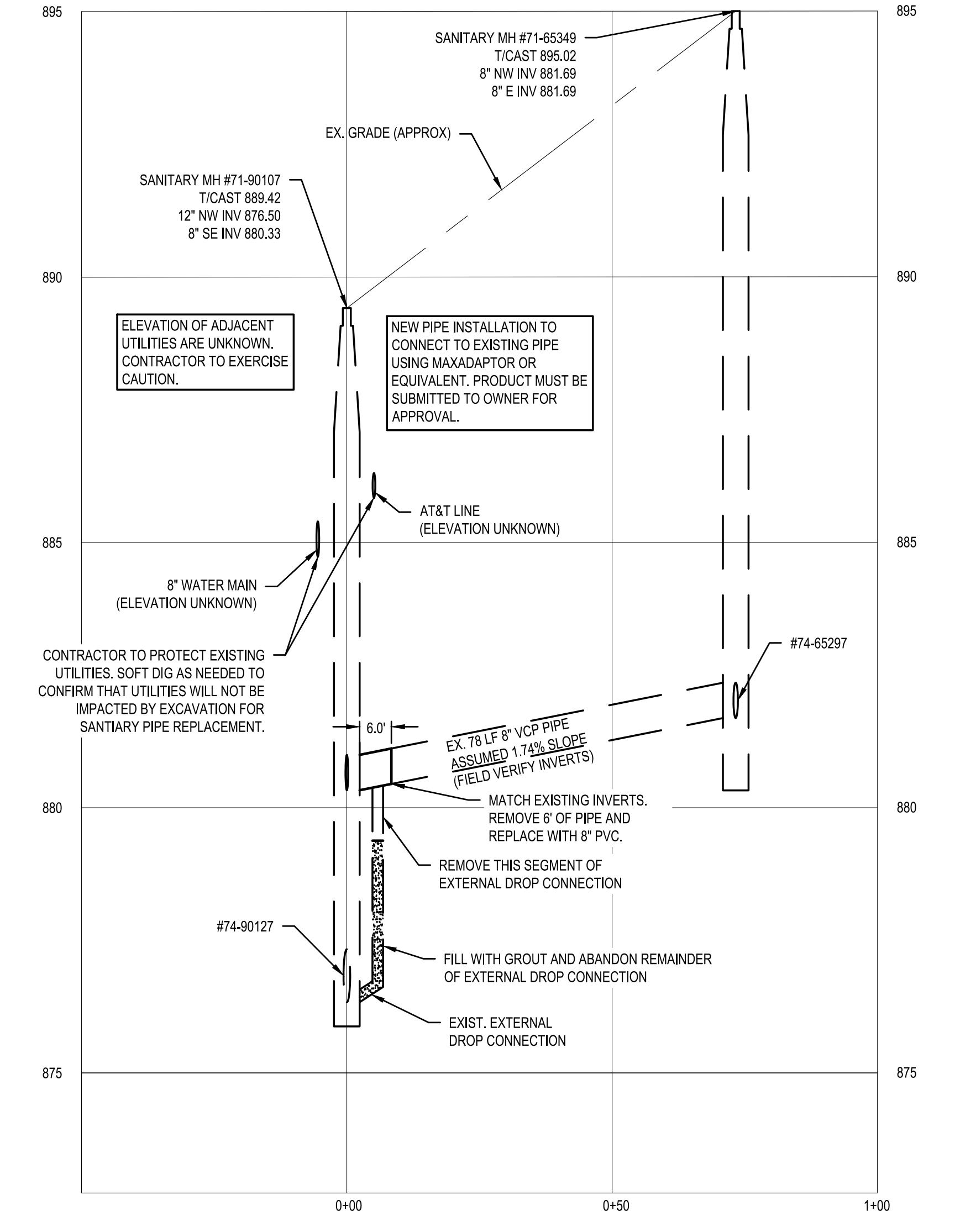
C-143



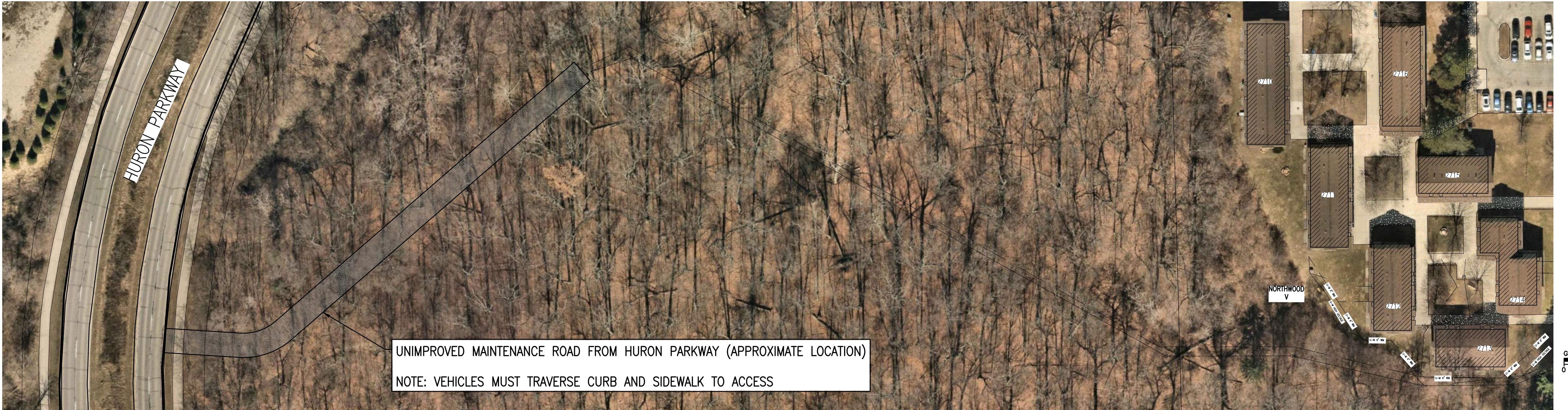
Profile View of PIPE #74-65441



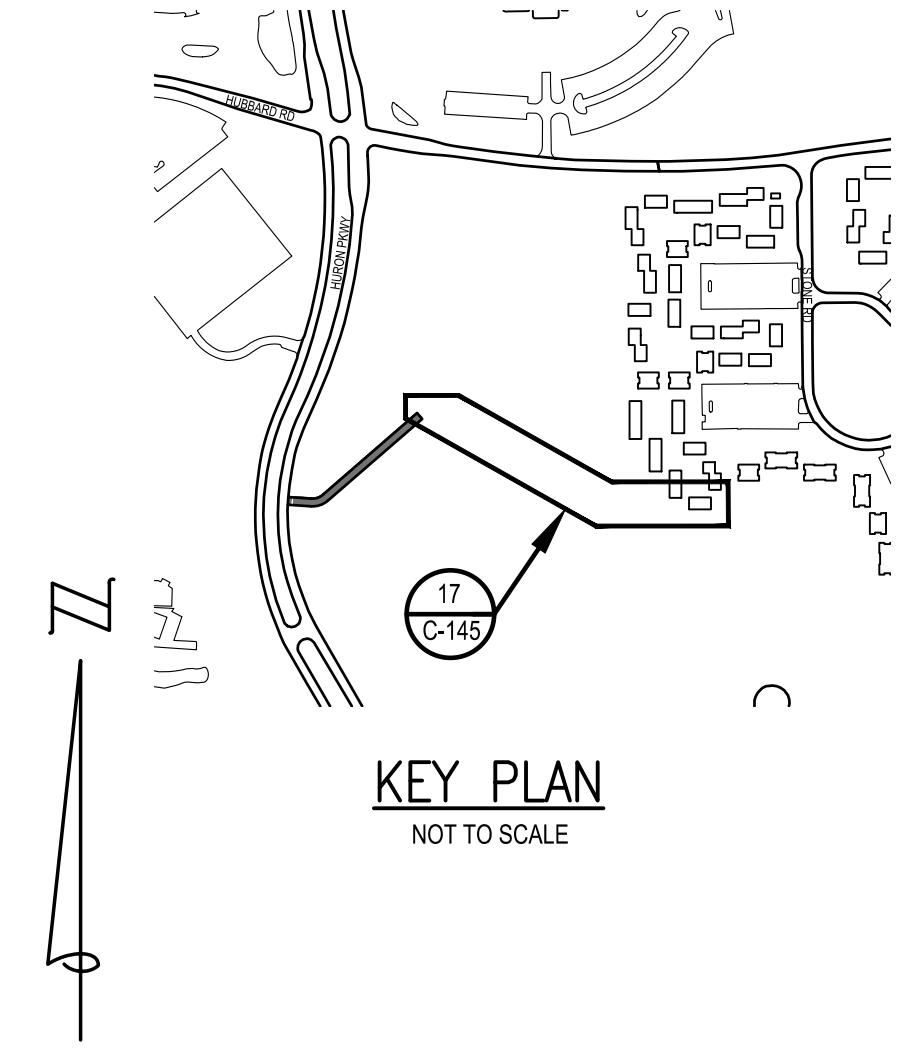
Profile View of PIPE #74-65522



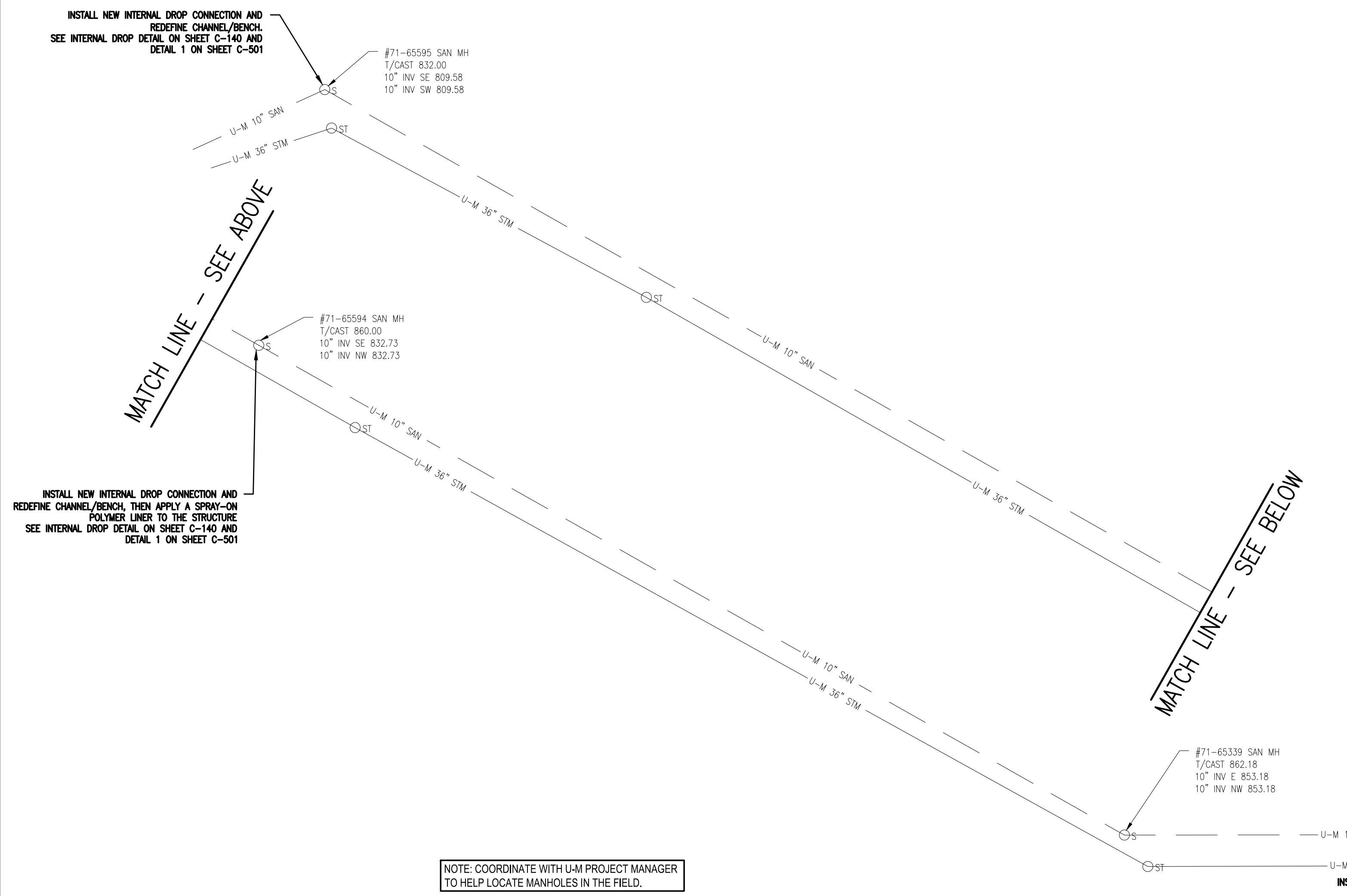
Know what's below.
Call before you dig.



ACCESS ROAD FROM HURON PARKWAY TO NORTHWOOD V SEWER

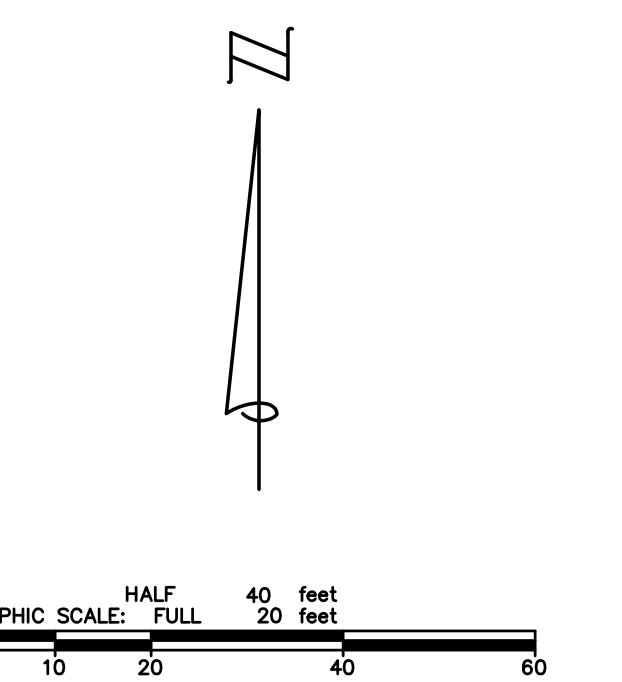


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MANHOLE #71-65314, #71-65338, #71-65594, #71-65595 (NORTHWOOD V)

C-145
NOT TO SCALE



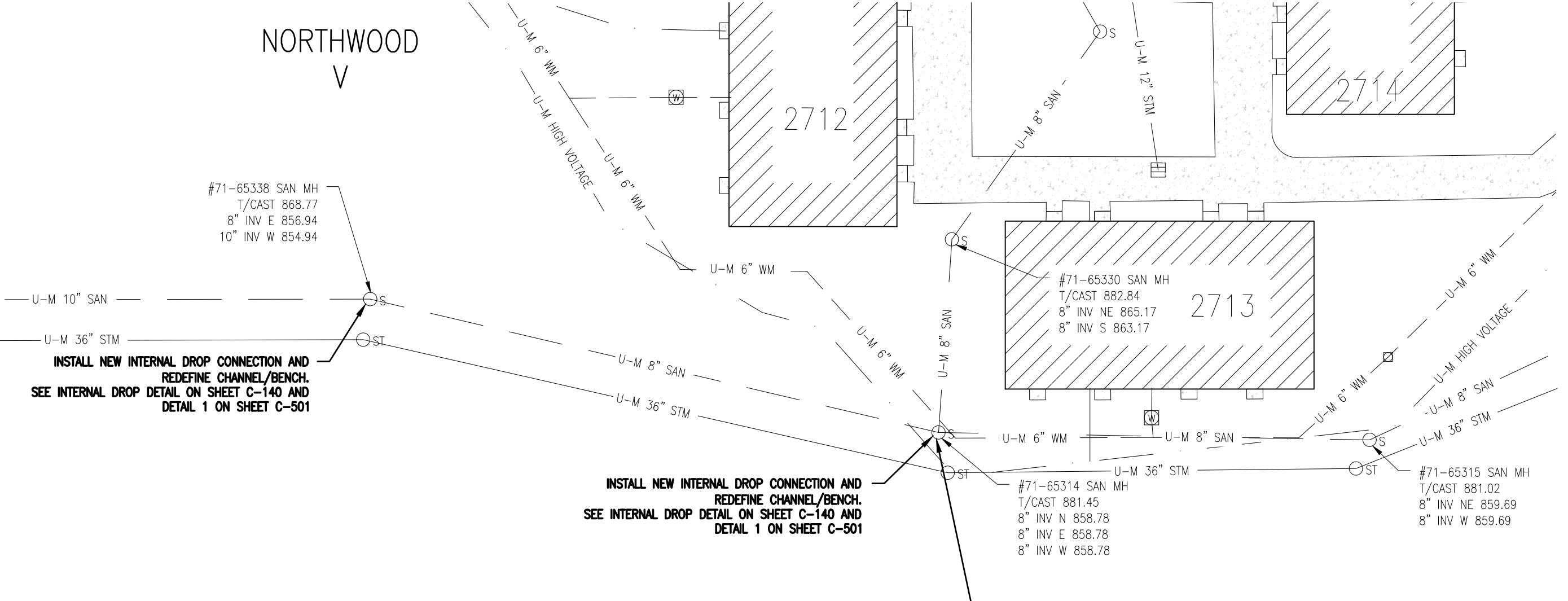
UTILITY SYMBOLS

○ ST	STORM MANHOLE
□ S	SQUARE CATCH BASIN
● R	ROUND CATCH BASIN
○ S	SANITARY MANHOLE
□ G	GATE VALVE & BOX
□ W	WATER STOP BOX
○ F	FIRE HYDRANT
○ M	WATER METER
○ L	LIGHT/DECOR LAMP POLE
□ H	HIGH VOLTAGE MANHOLE
● P	PLASTIC DRUM, HIGH INTENSITY
─ T	TRAFFIC CONTROL SIGN
─ B	BARRICADE, TYPE III

UTILITY PATTERN

— — — HIGH/LOW VOLTAGE — — —	ELECTRICAL *
— — — IT CONDUIT — — —	IT CONDUIT
— — — 12" WM — — —	WATER MAIN/SERVICE
— — — 12" SAN — — —	SANITARY SEWER
— — — 12" STM — — —	STORM SEWER
— — — SANITARY SEWER REMOVAL — — —	STORM SEWER REMOVAL
— — — PIPE BURSTING — — —	PIPE BURSTING

*OH = OVERHEAD, UG = UNDERGROUND



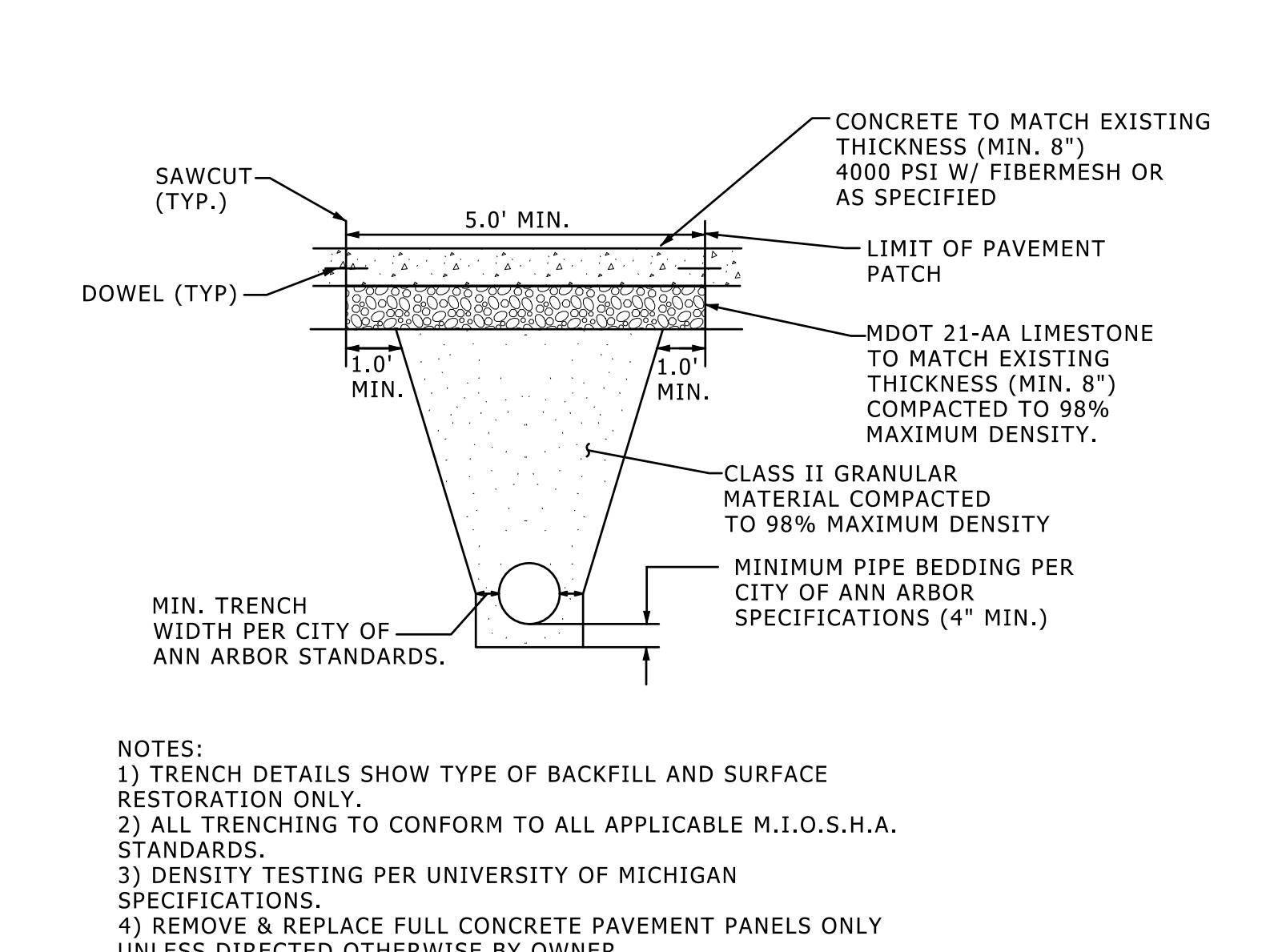
Know what's below.
Call before you dig.

PIPE AND MANHOLE NOTES:

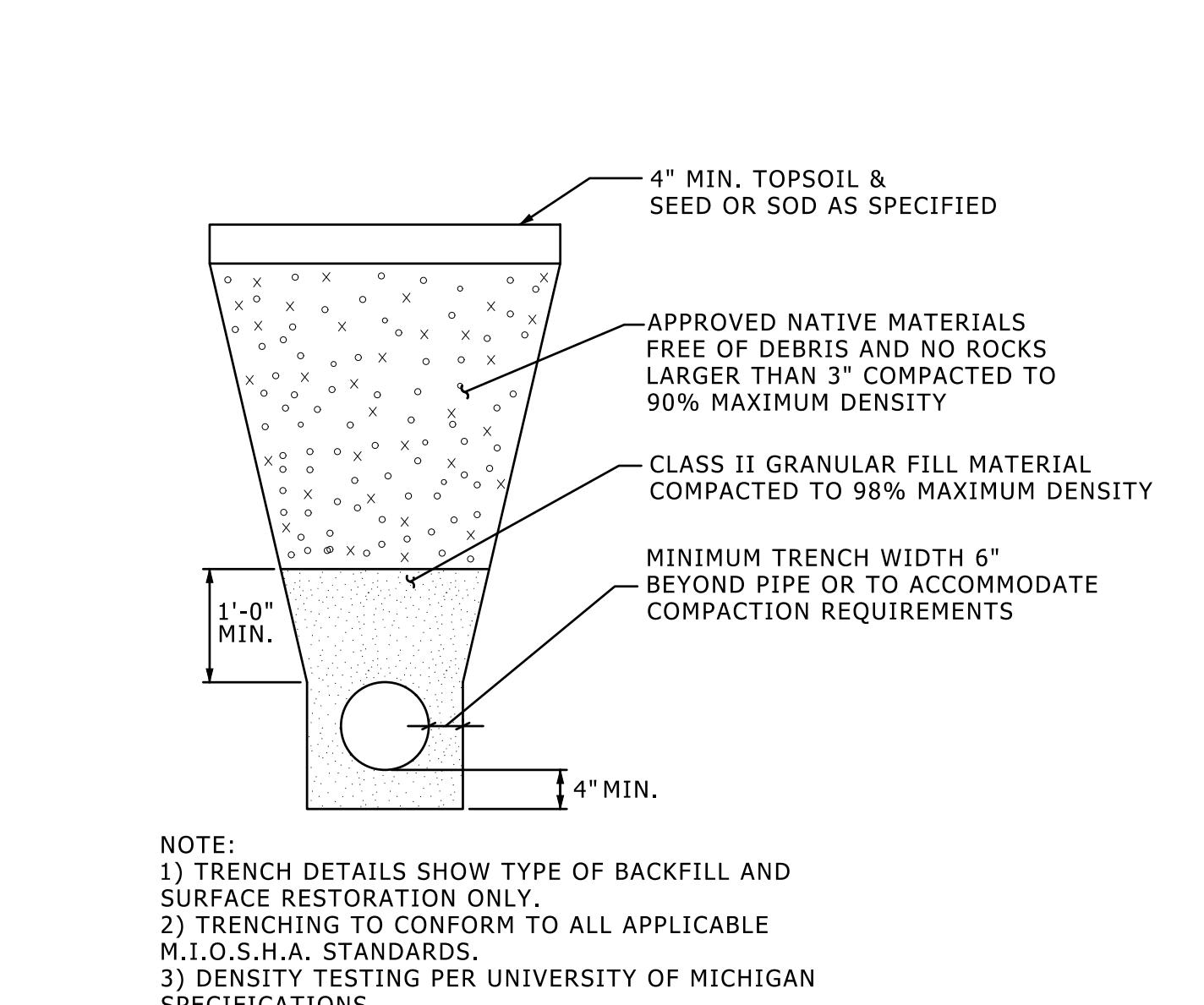
- EXCAVATION; DISPOSAL OF UNSUITABLE OR EXCESS EXCAVATED MATERIALS; TEMPORARY SHEETING, BRACING AND SHORING OF EXCAVATIONS; SUPPORT, RELOCATION, REPLACEMENT, CONNECTION OR RECONNECTION OF EXISTING PIPE LINES, BUILDING LEADS AND UTILITIES; AND COMPLETE CLEANUP SHALL BE INCLUDED AS PART OF MANHOLE INSTALLATION.
- PIPE REMOVAL AND REPLACEMENT OR ABANDONMENT SHALL INCLUDE CLEARING, EXCAVATING, TRENCHING; DISPOSAL OF ITEMS FROM CLEARING; DISPOSAL OF UNSUITABLE OR EXCESS EXCAVATED MATERIALS; CUTTING, REMOVAL, AND DISPOSAL OF EXISTING PIPE; BYPASS PUMPING (SEE BELOW); TEMPORARY SHEETING, BRACING AND SHORING OF EXCAVATIONS; SUPPORT, RELOCATION, REPLACEMENT, CONNECTION OR RECONNECTION OF EXISTING PIPE LINES, BUILDING LEADS AND UTILITIES; FURNISHING AND PLACING OF PIPE, JOINTING MATERIALS, FITTINGS, BULKHEADS, PLUGS, ADAPTORS; FURNISHING AND PLACING OF REQUIRED BEDDING, BACKFILL, AND FILL MATERIALS; AND COMPLETE CLEANUP AND SURFACE RESTORATION.
- REINFORCED CONCRETE PIPE (RCP) SHALL CONFORM TO THE REQUIREMENTS OF REINFORCED CONCRETE PIPE OF ASTM DESIGNATION C 76, CLASS IV, UNLESS OTHERWISE DESIGNATED ON THE PLANS. JOINTS FOR REINFORCED CONCRETE PIPE SHALL MEET ASTM C443 AND SHALL BE RUBBER GASKET FOR TONGUE AND GROOVE, FULL BELL AND SPIGOT RUBBER O-RING GASKET, OR MODIFIED GROoved TONGUE WITH RUBBER GASKET. CONNECTIONS TO EXISTING PIPE SHALL BE MADE BY USING A FERNO FLEXIBLE COUPLING WITH STAINLESS STEEL STRAPS.
- STORM SEWER SPECIFIED AS HIGH DENSITY POLYETHYLENE (HDPE) SHALL MEET THE REQUIREMENTS OF AASHTO M294. THE PIPE SHALL BE CORRUGATED WITH AN INTEGRALLY FORMED SMOOTH INTERIOR. JOINTS SHALL BE GASKETED WATER TIGHT JOINTS USING WATERTIGHT SLEEVES. SLEEVES SHALL BE FACTORY INSTALLED ON ONE END OF THE PIPE WITH A FACTORY INSTALLED GASKET ON THE OPPOSITE END OF THE PIPE.
- CONTRACTOR TO FOLLOW U-M AEC REQUIREMENTS FOR VIDEO INSPECTION OF SEWER PIPE. SEE REQUIREMENTS WITHIN THE SPECIFICATIONS.

BYPASS PUMPING NOTES:

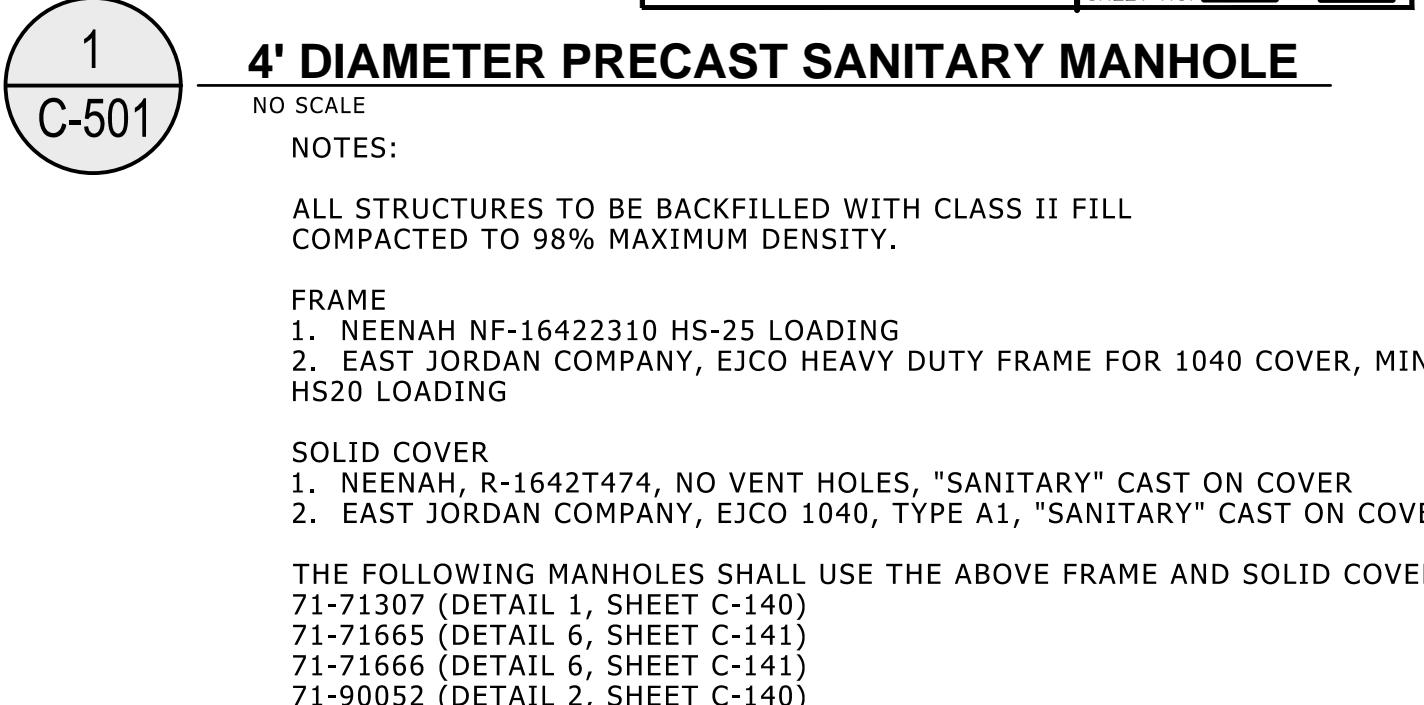
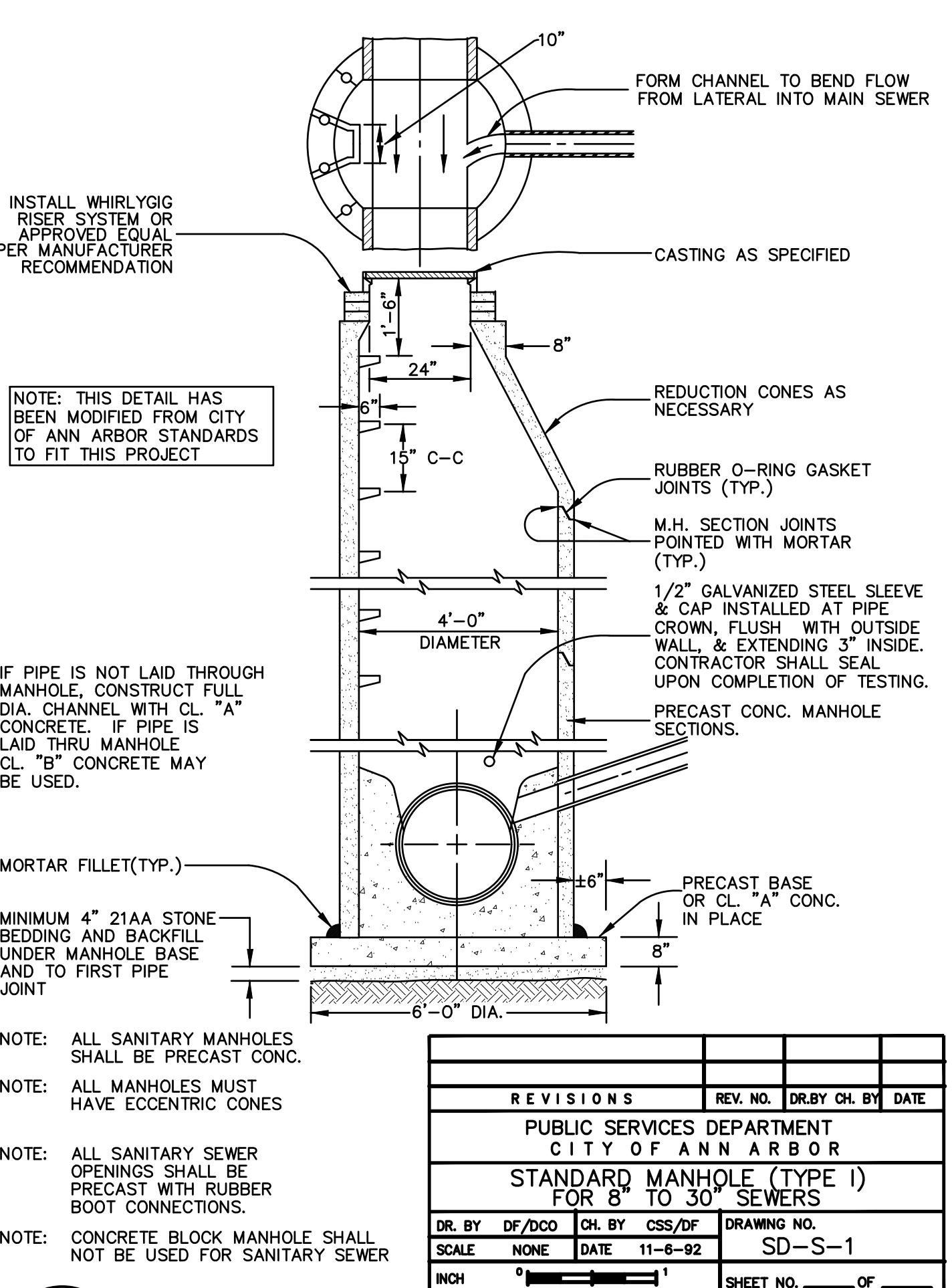
- FOR ANY PIPE THAT IS BEING REMOVED AND REPLACED, BYPASS PUMPING WILL BE REQUIRED TO MAINTAIN FLOW. FLOW DIVERSION PER SPECIFICATION SHALL INCLUDE LABOR AND SUPERVISION REQUIRED TO SET UP AND OPERATE THE PUMPING AND BYPASSING SYSTEM. BYPASS PUMPING SYSTEM MAY BE REMOVED ONCE THE NEW PIPE IS INSTALLED.
- CONTRACTOR IS REQUIRED TO SUBMIT PUMP AND CONTROL SPECIFICATIONS TO OWNER FOR APPROVAL. SPECIFICATIONS MUST INCLUDE NAME OF MANUFACTURER, MODEL; DETAILS OF CONSTRUCTION AND INSTALLATION; SUCTION AND DISCHARGE HOSES, CONNECTIONS AND VALVES; SOUND LEVEL; PUMP CURVE; CONTROL LADDER DIAGRAM; ALARM TELEMETRY; AND TEMPORARY BYPASS PUMPING PLAN.
- CONTRACTOR IS REQUIRED TO SUBMIT A PLAN AND SCHEDULE FOR BYPASS PUMPING AND POINT OF DISCHARGE TO OWNER FOR APPROVAL AND INCLUDE STAGING AREAS FOR PUMPS; SCHEDULES; LOCATIONS; ELEVATIONS; NUMBER, SIZE, MATERIAL LOCATION AND METHOD OF INSTALLATION OF SUCTION AND DISCHARGE PIPING; BYPASS PUMP SIZES, CAPACITY, NUMBER OF EACH SIZE TO BE ON SITE AND POWER REQUIREMENTS; ROAD CROSSINGS; PRESSURE TESTING; PROCEDURES FOR CONTINUOUS MONITORING; MAINTENANCE OF TRAFFIC; NOISE CONTROL FOR EACH PUMP; PLANS FOR ACCESS TO PUMPING LOCATION; CONFINED SPACE PLAN; SPILL RESPONSE PLAN; AND OTHER INCIDENTAL ITEMS NECESSARY TO INSURE PROTECTION OF THE FACILITIES, INCLUDING PROTECTION OF THE ACCESS AND BYPASS PUMPING LOCATIONS FROM DAMAGE DUE TO THE DISCHARGE FLOWS, AND COMPLIANCE WITH THE REQUIREMENTS AND PERMIT CONDITIONS SPECIFIED ON THE PLANS.
- CONTRACTOR IS REQUIRED TO SUBMIT A SPILL RESPONSE PLAN TO OWNER FOR APPROVAL AND MUST INCLUDE NAMES AND NUMBERS OF THE EMERGENCY CLEAN-UP CREW, NAMES AND NUMBERS OF U-M STAFF TO BE CONTACTED IMMEDIATELY, LIST OF ON-HAND SPILL CONTAINMENT AND CLEAN-UP MATERIALS, PRECAUTIONS TO REDUCE THE LIKELIHOOD OF A SANITARY OR FUEL SPILL, PHYSICAL PROTECTIONS TO PREVENT A DISCHARGE TO THE STORM SEWER SYSTEM, AND PRECAUTIONS TO PREVENT HUMAN EXPOSURE TO A SPILL.
- BYPASS PUMPING IS NECESSARY DURING TELEVISING OF SEWERS WHEN THE DEPTH OF FLOW EXCEEDS 20% OF DIAMETER FOR 6-10 INCH PIPE, AND 25% OF DIAMETER FOR 12-24 INCH PIPE. TOTAL RESTRICTION OF FLOW IS PROHIBITED UNLESS APPROVED IN WRITING BY THE OWNER. BYPASSING WASTEWATER ONTO GROUND, INTO STORM SEWERS, OR TO SURFACE WATERS IS PROHIBITED. CONTRACTOR IS RESPONSIBLE FOR DAMAGES TO PRIVATE OR PUBLIC PROPERTY DUE TO SEWAGE BACKUP WHILE BYPASS PUMPING.
- NO WORK SHALL BEGIN UNTIL THE BYPASS PUMPING PLAN HAS BEEN REVIEWED AND APPROVED BY THE ENGINEER. PROVIDE AND MAINTAIN BYPASS PUMPING EQUIPMENT AND MANPOWER NECESSARY TO ADEQUATELY PERFORM THE WORK. CONTRACTOR SHALL PERFORM LEAKAGE AND PRESSURE TESTS OF THE BYPASS PUMPING SYSTEM PRIOR TO ACTUAL OPERATION. GIVE THE ENGINEER 24-HOURS' NOTICE PRIOR TO TESTING. MANHOLES, WET WELLS AND VAULTS OPENED TO ENABLE BYPASS PUMPING SHALL BE PROVIDED WITH TEMPORARY COVERS TO PREVENT WORKERS AND THE GENERAL PUBLIC FROM FALLING INTO THE STRUCTURE. PROVIDE TRAFFIC AND PEDESTRIAN CONTROLS WHEN WORK IS LOCATED WITHIN THE ROAD ROW, WHICH SHALL CONFORM TO THE LATEST EDITION OF THE MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (M.M.U.T.C.D.).



4
C-501



5
C-501



NO SCALE

4' DIAMETER PRECAST SANITARY MANHOLE

NO SCALE

NOTES:

ALL STRUCTURES TO BE BACKFILLED WITH CLASS II FILL COMPACTED TO 98% MAXIMUM DENSITY.

FRAME

1. NEENAH NF-16422310 HS-25 LOADING

2. EAST JORDAN COMPANY, EJCO HEAVY DUTY FRAME FOR 1040 COVER, MINIMUM HS20 LOADING

SOLID COVER

1. NEENAH, R-1642T474, NO VENT HOLES, "SANITARY" CAST ON COVER

2. EAST JORDAN COMPANY, EJCO 1040, TYPE A1, "SANITARY" CAST ON COVER

THE FOLLOWING MANHOLES SHALL USE THE ABOVE FRAME AND SOLID COVER:
71-71307 (DETAIL 1, SHEET C-140)
71-71665 (DETAIL 6, SHEET C-141)
71-71666 (DETAIL 6, SHEET C-141)
71-90052 (DETAIL 2, SHEET C-140)
74-U00060 (ALL NEW STRUCTURES ON PIPE) (DETAIL 1, SHEET C-140)

2 C-501

NO SCALE

4' DIAMETER PRECAST SANITARY MANHOLE

NO SCALE

NOTES:

ALL TRENCH DETAILS SHOW TYPE OF BACKFILL AND SURFACE RESTORATION ONLY.

APPROVED NATIVE MATERIALS FREE OF DEBRIS AND NO ROCKS LARGER THAN 3" COMPACTED TO 90% MAXIMUM DENSITY

CLASS II GRANULAR FILL MATERIAL COMPACTED TO 98% MAXIMUM DENSITY

MINIMUM TRENCH WIDTH 6"

BEYOND PIPE OR TO ACCOMMODATE COMPACTION REQUIREMENTS

1' 0" MIN.

4" MIN.

1' 0" MIN.

5.0' MIN.

LIMIT OF PAVEMENT PATCH

MDOT 21-AA LIMESTONE TO MATCH EXISTING THICKNESS (MIN. 8") COMPACTED TO 98% MAXIMUM DENSITY

CLASS II GRANULAR MATERIAL COMPACTED TO 98% MAXIMUM DENSITY

MINIMUM PIPE BEDDING PER CITY OF ANN ARBOR SPECIFICATIONS (4" MIN.)

MIN. TRENCH WIDTH PER CITY OF ANN ARBOR STANDARDS.

NOTES:

1) TRENCH DETAILS SHOW TYPE OF BACKFILL AND SURFACE RESTORATION ONLY.

2) ALL TRENCHING TO CONFORM TO ALL APPLICABLE M.I.O.S.H.A. STANDARDS.

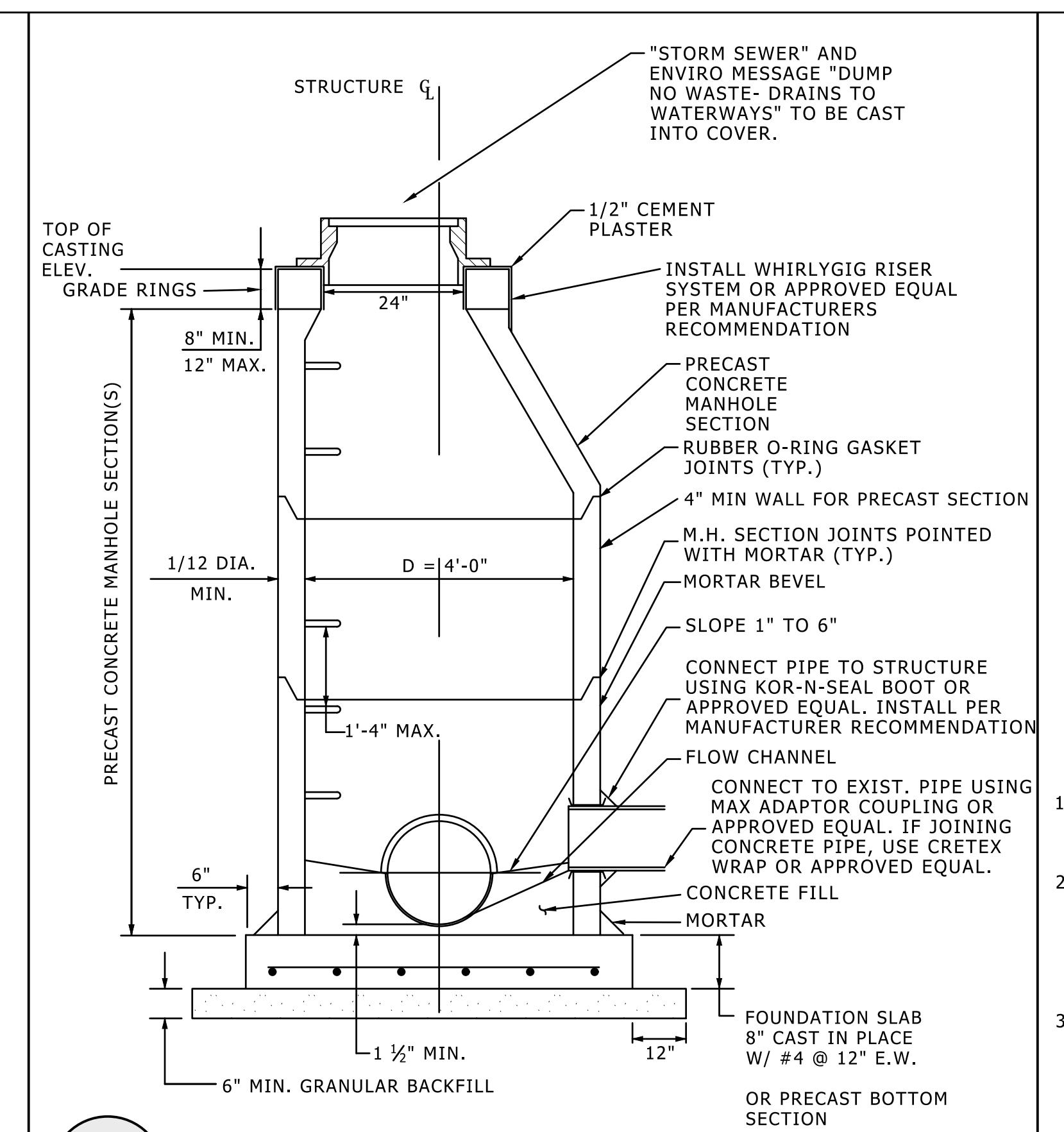
3) DENSITY TESTING PER UNIVERSITY OF MICHIGAN SPECIFICATIONS.

4) REMOVE & REPLACE FULL CONCRETE PAVEMENT PANELS ONLY UNLESS DIRECTED OTHERWISE BY OWNER.

UTILITY TRENCH WITH CONCRETE PATCH

NO SCALE

4
C-501



NO SCALE

4' DIAMETER PRECAST STORM MANHOLE

NO SCALE

NOTES:

ALL STRUCTURES TO BE BACKFILLED WITH CLASS II FILL COMPACTED TO 98% MAXIMUM DENSITY.

FRAME

1. NEENAH NF-16422310 HS-25 LOADING

2. EAST JORDAN COMPANY, EJ HEAVY DUTY FRAME FOR 1040 COVER, MINIMUM HS20 LOADING

SOLID COVER

1. NEENAH, R-1642T474, NO VENT HOLES, ENVIRO NOTICE

2. EAST JORDAN COMPANY, EJ 1040, TYPE A1, ENVIRO NOTICE

DETAIL TO BE USED WITHIN DETAILS 12 AND 13 ON SHEET C-140

2 C-501

NO SCALE

NOTES:

ALL STRUCTURES TO BE BACKFILLED WITH CLASS II FILL COMPACTED TO 98% MAXIMUM DENSITY.

STRUCTURE

"STORM SEWER" AND ENVIRO MESSAGE "DUMP NO WASTE- DRAINS TO WATERWAYS" TO BE CAST INTO COVER.

1/2" CEMENT PLASTER

INSTALL WHIRLYGIG RISER SYSTEM OR APPROVED EQUAL PER MANUFACTURER'S RECOMMENDATION

PRECAST CONCRETE SECTION(S)

RUBBER O-RING GASKET JOINTS (TYP.)

4" MIN WALL FOR PRECAST SECTION

M.H. SECTION JOINTS POINTED WITH MORTAR (TYP.)

MORTAR BEVEL

SLOPE 1" TO 6"

CONNECT PIPE TO STRUCTURE USING KOR-SEAL BOOT OR APPROVED EQUAL. INSTALL PER MANUFACTURER'S RECOMMENDATION

CONNECT TO EXIST. PIPE USING MAX ADAPTOR COUPLING OR APPROVED EQUAL. IF JOINING CONCRETE PIPE, USE CRETEx WRAP OR APPROVED EQUAL.

CONCRETE FILL

MORTAR

FOUNDATION SLAB 8" CAST IN PLACE W/ #4 @ 12" E.W.

6" MIN. GRANULAR BACKFILL

2 C-501

NO SCALE

NOTES:

ALL STRUCTURES TO BE BACKFILLED WITH CLASS II FILL COMPACTED TO 98% MAXIMUM DENSITY.

STRUCTURE

"STORM SEWER" AND ENVIRO MESSAGE "DUMP NO WASTE- DRAINS TO WATERWAYS" TO BE CAST INTO COVER.

1/2" CEMENT PLASTER

INSTALL WHIRLYGIG RISER SYSTEM OR APPROVED EQUAL PER MANUFACTURER'S RECOMMENDATION

PRECAST CONCRETE SECTION(S)

RUBBER O-RING GASKET JOINTS (TYP.)

4" MIN WALL FOR PRECAST SECTION

M.H. SECTION JOINTS POINTED WITH MORTAR (TYP.)

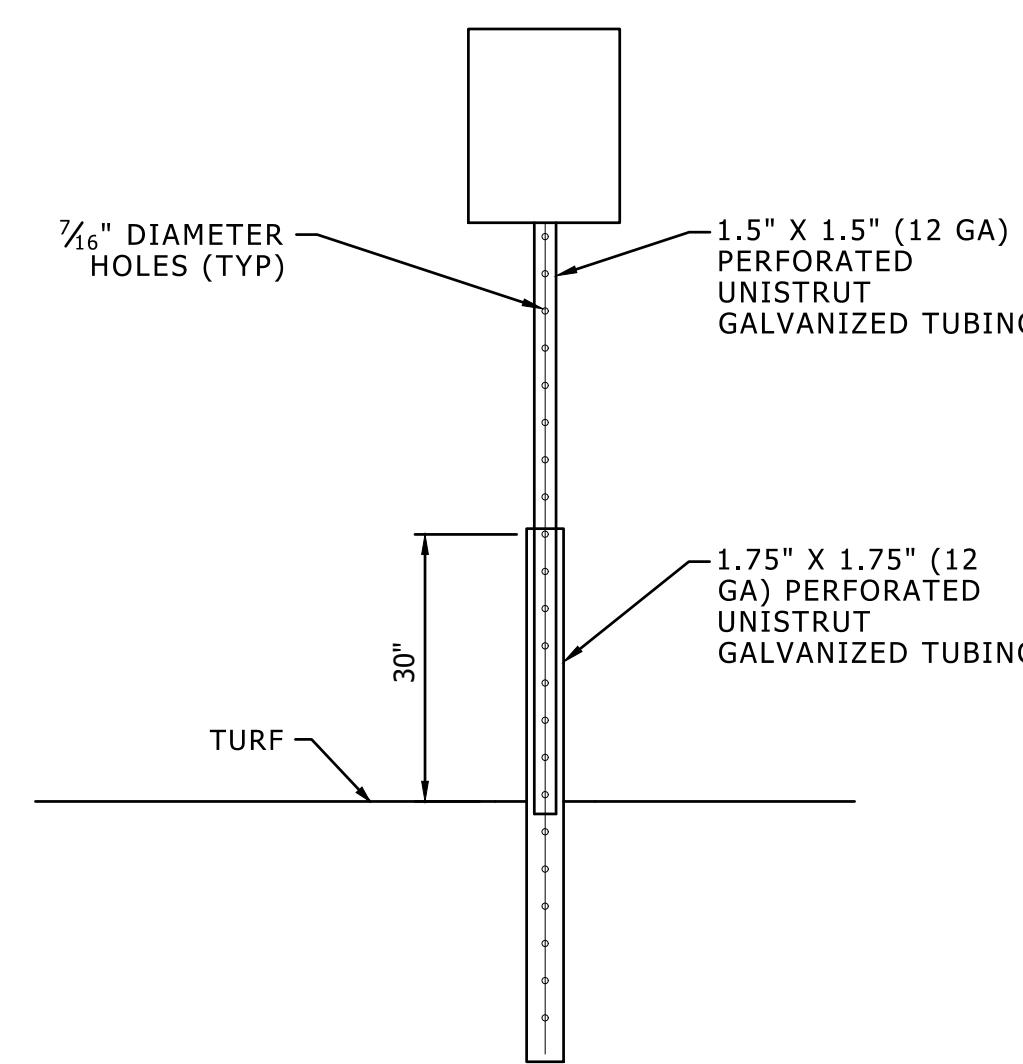
MORTAR BEVEL

SLOPE 1" TO 6"

CONNECT PIPE TO STRUCTURE USING KOR-SEAL BOOT OR APPROVED EQUAL. INSTALL PER MANUFACTURER'S RECOMMENDATION

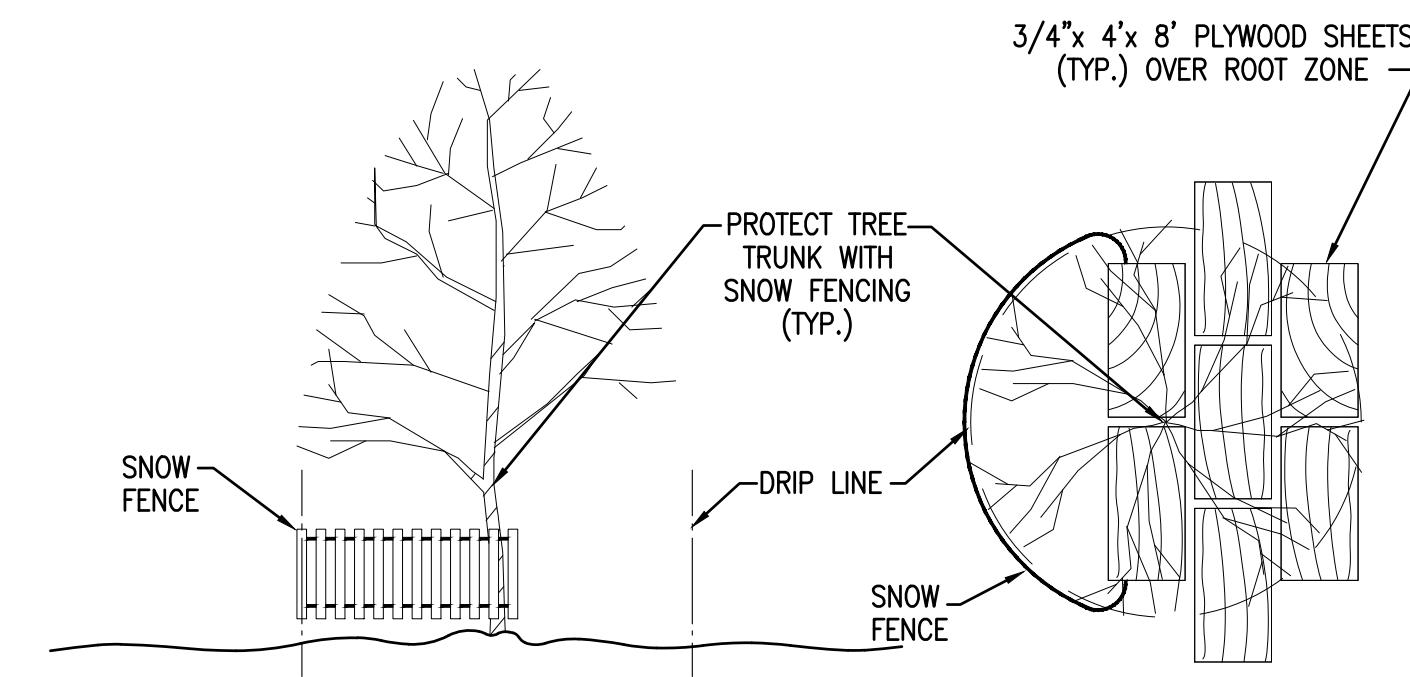
CONNECT TO EXIST. PIPE USING MAX ADAPTOR COUPLING OR APPROVED EQUAL. IF JOINING CONCRETE PIPE, USE CRETEx WRAP OR APPROVED EQUAL.

CONCRETE FILL



NOTE: SIGN SPECIFICATIONS AND HEIGHT TO MEET MMUTCD.

1 **SIGN MOUNT - TURF**
C-521
NO SCALE



ELEVATION
2 **STANDARD TREE PROTECTION**
C-521
NOT TO SCALE

NOTE: PULL BACK FENCING TO INSTALL PLYWOOD

ISSUE:	FOR BID
REVISIONS:
DATE:	PROJ NUMBER: ENG/NR CAD: COUNTY: MUNICIPALITY:
02/11/2022	09102-01010 OP: AMB: CSV: WARDENAW CITY OF ANN ARBOR
SHEET:	UNIVERSITY OF MICHIGAN P17748 SANITARY/STORM SEWER VIDEO ASSESSMENT & REPAIRS (BP2) DETAILS - SITE RESTORATION



Know what's below.
Call before you dig.