

# CITY OF LOGAN

## 1000 NORTH 990 TO 1200 EAST

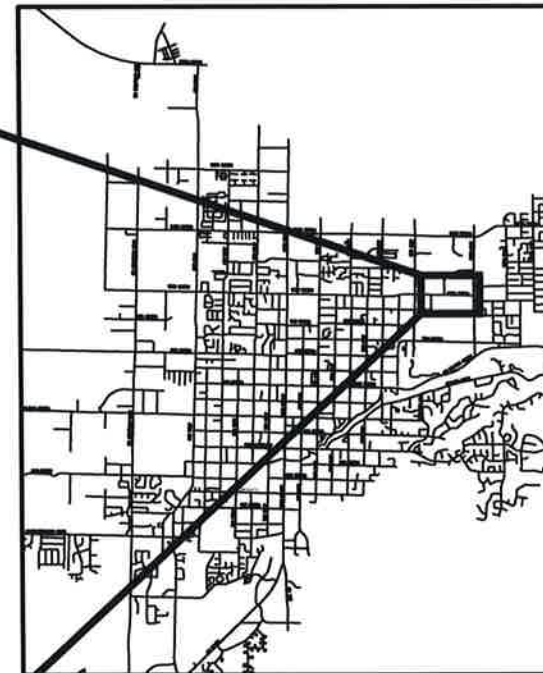
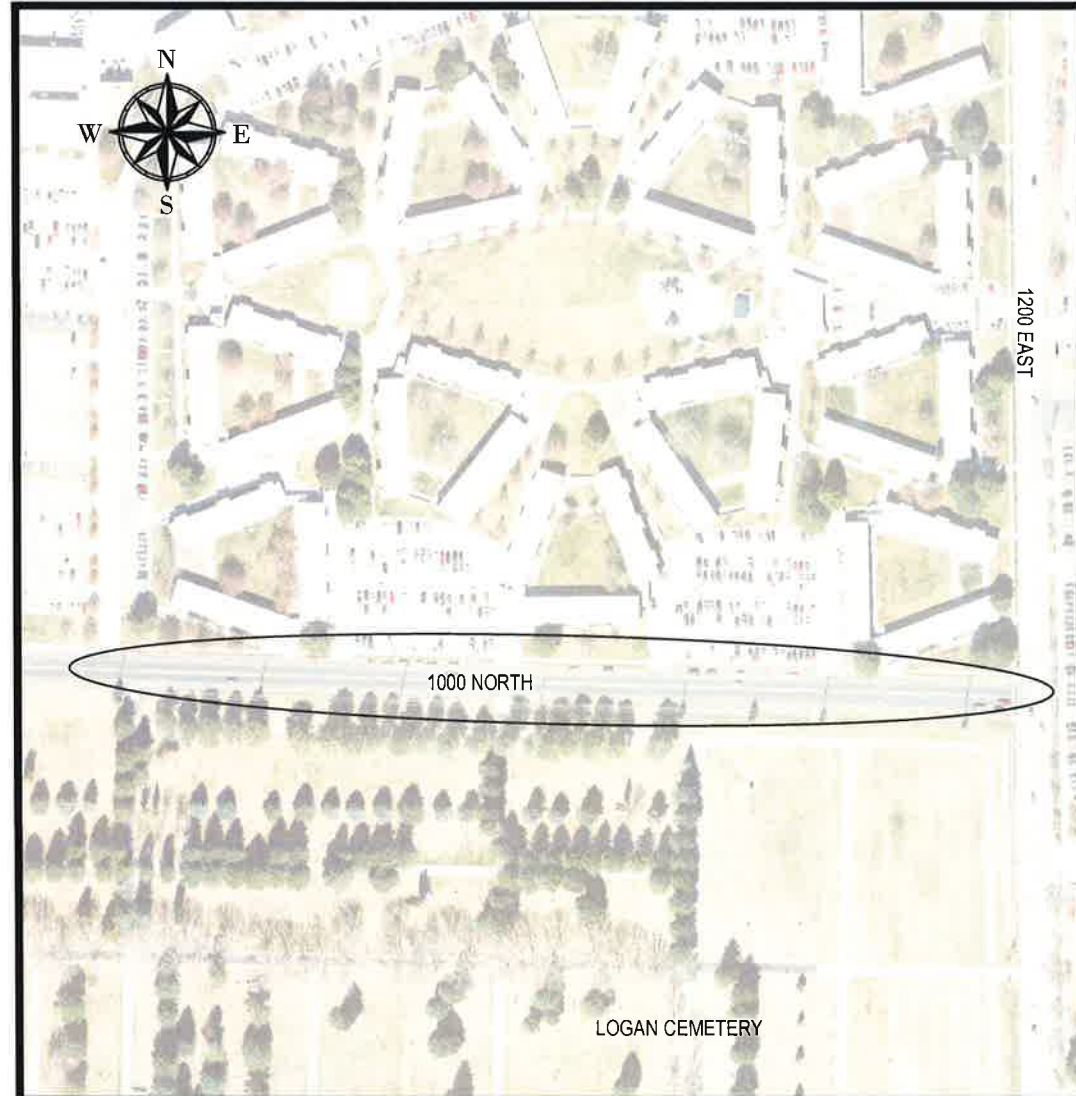
### SEWER LINE REHABILITATION/REPLACEMENT

### PROJECT NUMBER: ENG# 17009



**PUBLIC WORKS DEPARTMENT**

### PROJECT LOCATION



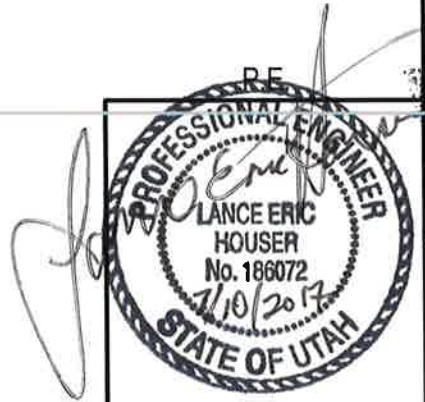
THESE PLANS HAVE BEEN REVIEWED AND APPROVED BY THE FOLLOWING:

PUBLIC WORKS DIRECTOR: Mark R. Nielsen 7-10-2017  
 MARK NIELSEN, P.E. DATE

WATER/WATSE WATER DIVISION MANAGER: Paul Lindhardt 7-10-17  
 PAUL LINDHARDT, P.E. DATE

CITY ENGINEER: Bill Young 7/10/17  
 BILL YOUNG, P.E. DATE

ASST. CITY ENGINEER: Lance Eric Houser 7/10/17  
 LANCE HOUSER, P.E. DATE



LOGAN CITY ENGINEERING  
 290 NORTH 100 WEST  
 LOGAN, UTAH 84321

DESIGNED: TDICKINSON	DATE: 10-Jul-17
DRAFTED: GSTEPHENSON	PROJECT: 17009
CHECKED: LHOUSER	REVISION: 100%

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# UTILITY LEGEND

	EXISTING	PROPOSED
GAS		
TELECOM		
UNDERGROUND POWER		
SANITARY SEWER		
WATER		
IRRIGATION		
SEWER FORCED MAIN		
SEWER LATERAL		
STORM DRAIN		
WATER LATERAL		

# GENERAL NOTES

## STANDARDS AND SPECIFICATIONS

- ALL CONSTRUCTION SHALL MEET CITY OF LOGAN STANDARDS AND SPECIFICATIONS (APWA 2007, AS AMENDED BY LOGAN CITY AS OF DATE APPROVED FOR CONSTRUCTION BY ENGINEER). STANDARDS AND SPECIFICATIONS CAN BE VIEWED AND PRINTED AT: [HTTP://WWW.LOGANUTAH.ORG/GOVERNMENT/DEPARTMENTS/PUBLIC\\_WORKS/ENGINEERING/ENGINEERING\\_DOCS.PHP](http://www.loganutah.org/government/departments/public_works/engineering/engineering_docs.php)
- ANY AMBIGUITIES OR CONFLICTS IDENTIFIED BY THE CONTRACTOR, CONTRACTOR'S REPRESENTATIVE, ENGINEER, OR ENGINEER'S REPRESENTATIVE SHALL BE IDENTIFIED TO THE ENGINEER IMMEDIATELY. THESE SHALL BE RESOLVED AT NO ADDITIONAL COST TO THE CITY BASED ON THE FOLLOWING ORDER OF PRECEDENCE ( PER APWA 2007 SECTION 00 72 00, PART 3, SECTION 3.3) EXCEPT AS NOTED HEREIN:
  - CONTRACT FOR CONSTRUCTION (FROM BID DOCUMENTS)
  - MODIFICATIONS, ADDENDUMS, OR CHANGE ORDERS SHALL TAKE PRECEDENCE OVER ALL PREVIOUS MODIFICATIONS, ADDENDUMS, OR CHANGE ORDERS.
  - APWA 2007 GENERAL CONDITIONS SECTION 00 72 00 AS AMENDED BY LOGAN CITY
  - SPECIAL OR SUPPLEMENTAL SPECIFICATIONS
  - PLANS (DRAWINGS)
    - WRITTEN DIMENSIONS OVER MEASURED DIMENSIONS
    - SPECIAL DETAILS OVER PLANS AND PROFILES EXCEPT THAT LOGAN CITY STANDARD DETAILS SHALL TAKE PRECEDENCE OVER CONSTRUCTION DETAILS UNLESS STATED OTHERWISE BY CITY ENGINEER.
  - STORM WATER POLLUTION PREVENTION PLAN AND OTHER PERMITS
  - LOGAN CITY AMENDMENTS TO APWA 2007 STANDARD DRAWINGS
  - LOGAN CITY AMENDMENTS TO APWA 2007 STANDARD SPECIFICATIONS
  - APWA 2007 STANDARD DRAWINGS
  - APWA 2007 STANDARD SPECIFICATIONS
- CONTRACTOR IS SOLELY RESPONSIBLE TO REVIEW AND FULLY UNDERSTAND THE PLANS DURING BIDDING. DEVIATIONS OR DISCREPANCIES ARE TO BE IDENTIFIED DURING BIDDING IF AND WHEN IDENTIFIED.

## SAFETY IN THE WORK ZONE

- ALL PERSONNEL ARE REQUIRED TO WEAR HARD-HATS AND STEEL TOE BOOTS WITHIN THE WORK ZONE.
- ORANGE OR FLORESCENT YELLOW VESTS OR CLOTHING SHALL BE WORN WHILE WORKING ON THIS PROJECT COMPLIANT WITH THE FOLLOWING:
  - CLASS 3 WHILE WORKING AT NIGHT WITHIN UDOT RIGHT-OF-WAY OR WHERE VEHICLE VELOCITIES MAY EXCEED 50 MPH.
  - CLASS 2 WHILE WORKING WITHIN LOGAN CITY RIGHT-OF-WAY AND WHERE VEHICLE VELOCITIES ARE LESS THAN 50 MPH.
- ALL TRENCHING SHALL BE IN COMPLIANCE WITH OSHA 29 CFS, PART 1926. ALL SOILS SHALL BE CONSIDERED TYPE C WHILE PREPARING TRENCH SHORING CALCULATIONS UNLESS GEOTECHNICAL REPORT SPECIFIES A TYPE D.
- CONFORM TO ALL OTHER APPLICABLE OSHA RULES AND REGULATIONS WHILE WORKING ON THIS PROJECT.

## EXISTING UTILITIES

- UTILITY LOCATIONS SHOWN ON THE PLANS ARE APPROXIMATE ONLY.
- CONTRACTOR SHALL FIELD VERIFY ALL UTILITY LOCATIONS BY CONTACTING BLUE STAKES AT 1-800-662-4111 OR 811 AND OTHER APPLICABLE UTILITIES PRIOR TO EXCAVATION.
- UTILITY CONTACTS ARE AS FOLLOWS:
  - WATER AND SANITARY SEWER: PAUL LINDHARDT (435) 770-5033 OR KASEY ERICKSON (435) 994-0316.
  - STORM WATER: JED AL-IMARI (435) 881-4327 OR SHAWN HANSEN (435) 994-0526.
  - LOGAN CITY LIGHT AND POWER: STEVE CROSBY (435) 716-9745 OR (435) 757-8530.
  - COMCAST: ALEX VASQUEZ (801) 245-5314
  - CENTURY LINK: PAUL HIGBY (435) 232-3916
  - QUESTAR: NICK WHITE (435) 213-5662 OR (435) 755-2205
  - USU UTILITIES: LANCE MAUGHN (435) 797-7309
- CONTRACTOR SHALL POT-HOLE AND LOCATE EXISTING UTILITIES WHEN NECESSARY TO ENSURE CONSTRUCTION DOES NOT IMPACT EXISTING UTILITIES AND THAT THE LOCATION OF EXISTING UTILITIES DOES NOT AFFECT CONSTRUCTION. POT-HOLING SHALL BE DONE AT THE BEGINNING OF THE PROJECT IN ORDER TO PROVIDE UTILITY OWNERS ADEQUATE TIME TO RELOCATE SERVICES IF NECESSARY OR TO ALLOW ENGINEER TO REDESIGN PRIOR TO FABRICATION OF PRE-CAST STRUCTURES.
- CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR COSTS AND REPAIRS DUE TO DAMAGE OF EXISTING UTILITIES. ALL UTILITIES MAY NOT BE SHOWN ON PLANS.

## PERMITS

- CONTRACTOR SHALL COMPLY WITH THE TERMS OF ALL PERMITS REQUIRED FOR THIS PROJECT.
- CONTRACTOR SHALL OBTAIN AND KEEP COPIES OF ALL REQUIRED PERMITS AT PROJECT LOCATION DURING REASONABLE WORKING HOURS.
- CONTRACTOR SHALL OBTAIN A WORK IN THE RIGHT OF WAY PERMIT (CITY OF LOGAN) PRIOR TO INITIATING ANY SITE DISTURBANCE OR CONSTRUCTION IN LOGAN CITY RIGHT OF WAY.
- IF DEWATERING IS REQUIRED, CONTRACTOR SHALL OBTAIN DEWATERING PERMITS FROM THE STATE OF UTAH DIVISION OF WATER QUALITY AND COMPLY WITH ALL STATE REQUIREMENTS.
- CONTRACTOR SHALL OBTAIN A LOGAN CITY LAND DISTURBANCE PERMIT.

# CONSTRUCTION NOTES

## SURVEY AND CONSTRUCTION STAKING

- ALL SURVEY FOR THIS PROJECT SHALL BE PROVIDED BY THE CONTRACTOR SELECTED PROFESSIONAL LAND SURVEYOR.
- STAKEOUT, LAYOUT, AND QUANTITIES VERIFICATIONS SHALL BE PERFORMED BY THE CONTRACTOR OR CONTRACTOR SELECTED SURVEYOR.
- 2017 CIVIL 3D FILE WILL BE PROVIDED TO CONTRACTOR'S SELECTED PROFESSIONAL LAND SURVEYOR UPON REQUEST.

## ACCESS RESTRICTIONS, ROAD AND LANE CLOSURES, PEDESTRIAN ACCESS AND TRAFFIC CONTROL PLAN

- CONTRACTOR SHALL PROVIDE A TRAFFIC CONTROL PLAN, ADEQUATE TRAFFIC CONTROL, SIGNING, BARRICADING, AND PEDESTRIAN DIRECTION THROUGH AND AROUND THE CONSTRUCTION WORK ZONE IN COMPLIANCE WITH THE UDOT MUTCD AS REQUIRED BY UTAH STATE LAW ( R920-1).
- THE TRAFFIC CONTROL PLANS SHALL BE PROVIDED TO THE ENGINEER A MINIMUM OF 48 HOURS PRIOR TO THE PRE-CONSTRUCTION MEETING TO ALLOW REVIEW FOR APPROVAL. COMMENTS AND REQUIRED CHANGES SHALL BE PROVIDED AT THE PRE-CONSTRUCTION MEETING. ALL CORRECTIONS SHALL BE INCORPORATED INTO THE TRAFFIC CONTROL PLAN BEFORE A WORK IN THE RIGHT-OF-WAY PERMIT WILL BE ISSUED.
- CONTRACTOR SHALL INSTALL AND MAINTAIN ALL TRAFFIC CONTROL AS PART OF THIS PROJECT.
- CONTRACTOR SHALL INSPECT TRAFFIC CONTROL DAILY TO ENSURE A SAFE WORK ZONE.
- ANY SIGNIFICANT MODIFICATIONS TO THE TRAFFIC CONTROL PLAN DURING CONSTRUCTION SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO IMPLEMENTATION.
- PROPERTY OWNERS, RESIDENTS, AND BUSINESSES SHALL BE GIVEN 48 HOURS NOTICE OF DRIVEWAY ACCESS RESTRICTIONS DURING CONSTRUCTION. CONTRACTOR IS RESPONSIBLE FOR NOTIFYING HOMEOWNERS, RESIDENTS, AND BUSINESSES AS NEW PIPING AND CONCRETE ARE INSTALLED.
- ACCESS TO ALL BUSINESSES WITHIN THE PROJECT AREA SHALL BE COORDINATED WITH BUSINESS OWNERS AND REASONABLY MAINTAINED DURING CONSTRUCTION.
- CONTRACTOR SHALL PROVIDE NOTICE OF ROAD CLOSURE TO LOCAL AREA BUSINESSES AT LEAST 48-HOURS IN ADVANCE OF CLOSURE.
- CONTRACTOR SHALL COORDINATE LANE CLOSURES AND PARTIAL AND COMPLETE ROAD CLOSURES WITH THE ENGINEER.
- CONTRACTOR SHALL NOTIFY EMERGENCY SERVICES, CACHE VALLEY TRANSIT AUTHORITY, LOGAN CITY ENVIRONMENTAL DEPARTMENT, USU POLICE, AGGIE SHUTTLE, AND THE SCHOOL DISTRICT OF CLOSURE AT LEAST 48- HOURS PRIOR TO CLOSURE. THROUGH TRAFFIC MUST BE MAINTAINED TO THE GREATEST EXTENT REASONABLE AND SAFE.
- ROAD CLOSURE IS ALLOWED ON CONDITION OF CONTINUAL WORK IN THE ROADWAY. THE ROADWAY SHALL BE OPENED TO THROUGH TRAFFIC AT EVERY OPPORTUNITY WHEN CONDITIONS ARE SAFE AND WORK CREWS ARE NOT ACTIVELY WORKING IN THE ROADWAY.

## WATER AND SEWER UTILITIES INTERRUPTIONS

- APPROVAL FROM THE ENGINEER IS REQUIRED PRIOR TO EACH WATER AND SEWER SHUT-DOWN IF REQUIRED TO COMPLETE THIS PROJECT. ALL AFFECTED ENTITIES AND PROPERTY OWNERS SHALL BE NOTIFIED 48 HOURS PRIOR TO EACH APPROVED SHUTDOWN.
- THE CONTRACTOR SHALL PROVIDE AT LEAST 48-HOURS NOTICE TO THE CITY, PROPERTY OWNERS, RESIDENTS, AND BUSINESSES IN ADVANCE OF INTERRUPTION OF UTILITIES SERVICES.
- CITY PERSONNEL ARE THE ONLY INDIVIDUALS AUTHORIZED TO MANIPULATE WATER VALVES, METERS, AND SERVICES ON THE CITY WATER SYSTEM. THE CITY WILL PROVIDE PERSONNEL TO ISOLATE THE WATER SYSTEM IN THE AREA IMMEDIATELY IMPACTED BY CONSTRUCTION. THE CONTRACTOR SHALL WORK WITH THE CITY TO SCHEDULE UTILITIES INTERRUPTIONS AT LEAST 48-HOURS IN ADVANCE OF UTILITY INTERRUPTIONS.
- ALL UTILITIES SHALL BE KEPT IN WORKING ORDER EXCEPT FOR THE MINIMUM TIME NEEDED FOR EXCAVATION, TRENCHING, CONNECTIONS, ETC.
- THE CONTRACTOR SHALL MAKE EVERY EFFORT, AND COMMIT ALL RESOURCES NECESSARY TO COMPLETE WORK IN AN EXPEDITED FASHION IN ORDER TO MINIMIZE THE LENGTH OF TIME OF INTERRUPTION OF UTILITIES.

## IRRIGATION AND CANAL IMPACTS

- DAMAGE OF EXISTING IRRIGATION SYSTEMS AND BOXES WILL BE REPAIRED BY CONTRACTOR.
- CONTRACTOR SHALL ENSURE PRIVATE IRRIGATION WATER DELIVERED BY CANAL COMPANIES IS AVAILABLE TO ALL USERS OF THE SYSTEM AT THEIR SCHEDULED TIMES OF USE. COORDINATE INTERRUPTIONS WITH INDIVIDUAL USERS.
- CONTRACTOR SHALL COORDINATE METHOD OF IRRIGATION DELIVERY DURING CONSTRUCTION WITH INDIVIDUAL PROPERTY OWNERS PRIOR TO INITIATING CONSTRUCTION. ALL METHODS OF MITIGATING IMPACT SHALL BE APPROVED IN WRITING BY WATER USERS, OR THEIR DESIGNATED REPRESENTATIVE, PRIOR TO INITIATING DISTURBANCE.
- AUTHORIZED USERS OF THE IRRIGATION SYSTEM SHALL BE GIVEN 48 HOURS NOTICE PRIOR TO INTERRUPTIONS TO IRRIGATION SYSTEM.

## QUALITY CONTROL TESTING

- CONTRACTOR SHALL EMPLOY AN APPROVED QUALITY CONTROL TESTING AGENCY TO PROVIDE TESTING FOR THE SITE IN ACCORDANCE WITH THE APPROPRIATE SECTIONS OF APWA MANUAL OF STANDARDS AND SPECIFICATIONS AS AMENDED BY LOGAN CITY.
- THE CONTRACTOR QUALITY CONTROL TESTING AGENCY SHALL PROVIDE PROCTOR, GRADATION, AND CBR VALUES FOR PROPOSED GRANULAR BACKFILL BORROW AND UNTREATED BASE COURSE AT THE PRE-CONSTRUCTION MEETING. COMPACTION TESTS SHALL BE PROVIDED AT LEAST AT THE INTERVALS REQUIRED IN APWA 2007 STANDARD SPECIFICATIONS AS AMENDED BY LOGAN CITY.
- CONTRACTOR QUALITY CONTROL TESTING AGENCY SHALL PROVIDE ASPHALT TESTING INCLUDING NUCLEAR DENSITY TESTING FOR COMPACTION AND OTHER FIELD TESTS REQUIRED BY APWA SECTION 32 12 16, ACCEPTANCE. PATCH ALL ASPHALT CORE SAMPLES WITH CONCRETE.
- CONTRACTOR QUALITY CONTROL TESTING AGENCY SHALL PROVIDE CONCRETE TESTING INCLUDING AIR, SLUMP, 7 DAY BREAK TEST, AND 28 DAY BREAK TESTS AS REQUIRED BY APWA SECTION 03 30 05.
- FIELD TEST RESULTS SHALL BE IMMEDIATELY SUBMITTED TO THE ENGINEER FOR THE CITY OF LOGAN, THE DESIGNATED PUBLIC WORKS INSPECTOR FOR THE PROJECT, AND A COPY OF EACH REPORT KEPT ONSITE. EACH FAILED FIELD TEST AND ITS CORRESPONDING PASSING TEST SHALL BE CLEARLY IDENTIFIED IN EACH FIELD TEST REPORT.
- LABORATORY TEST RESULTS SHALL BE SUBMITTED TO THE ENGINEER FOR THE CITY OF LOGAN WITHIN 48 HOURS OF DETERMINATION.
- A FINAL SUMMARY REPORT, IN TABULAR FORM, SHALL BE SUBMITTED TO THE ENGINEER FOR THE CITY OF LOGAN PRIOR TO FINAL ACCEPTANCE OF THE PROJECT. THE FINAL SUMMARY REPORT SHALL INCLUDE TABULAR RESULTS SHOWING EACH FAILED TEST AND ITS CORRESPONDING PASSING TEST.

SHEET NO: <b>GN1</b> 1 OF 15	SCALE NO SCALE 1" VERIFY SCALE SCALE = 1/2" SHOWN SCALE IF PLOTTED ON B SIZE PAPER	REVISION BLOCK: 100%	DATE: 10-JUL-17 ENG#: 17009	DESIGNED: TUCKERSON DRAFTED: GSTERHENSON CHECKED: LHOUSER
1000 NORTH 990 TO 1200 EAST				
GENERAL NOTES				
LOGAN CITY ENGINEERING 290 NORTH 100 WEST LOGAN, UTAH 84321				

# PROJECT SPECIFIC NOTES

## EXCAVATION

- EXCAVATED MATERIALS SHALL NOT BE REUSED ON THIS PROJECT.
- NATIVE SUBGRADE MATERIAL SHALL BE COMPACTED TO FIRM AND UNYIELDING PRIOR TO THE PLACEMENT OF ANY NEW MATERIAL UNLESS SPECIFIED OTHERWISE IN THESE PLANS.
- PROOF ROLL EXISTING SUBGRADE PRIOR TO PLACING GRANULAR BACKFILL BORROW FOR ROADWAY PER APWA 32 05 10, SECTION 3.8.

## RIGHT OF WAY, CENTERLINE, AND GPS MONUMENTS

- ALL EXISTING RIGHT OF WAY MONUMENTS, CENTERLINE MONUMENTS, AND GPS MONUMENTS SHALL BE PROTECTED AND MAINTAINED UNDISTURBED UNLESS DIRECTED OTHERWISE BY THESE PLANS OR BY CHANGE ORDER SIGNED BY THE ENGINEER.
- WHERE DIRECTED ON DRAWINGS TO RESTORE OR RELOCATE MONUMENT:
  - CAREFULLY REMOVE CONCRETE OR ASPHALT FROM AROUND MONUMENT WITHOUT DISTURBING MONUMENT.
  - OBTAIN LID, FRAME, AND COVER TO PLACE OVER MONUMENT FROM LOGAN CITY SURVEYOR.
  - COORDINATE PLACEMENT OF OF LID, FRAME, AND COVER WITH LOGAN CITY SURVEYOR AND INSTALL LID, FRAME AND COVER AT THE FINISHED GRADE SPECIFIED IN THE LOGAN CITY STANDARD DETAILS.
  - COORDINATE FINAL VERIFICATION OF THE LID, FRAME, COVER AND RESTORED MONUMENT HORIZONTAL AND VERTICAL ELEVATIONS FOR FINAL APPROVAL WITH LOGAN CITY SURVEYOR.
- WHERE DIRECTED ON DRAWINGS:
  - INSTALL RIGHT OF WAY, CENTERLINE, AND GPS MONUMENTS IN ACCORDANCE WITH LOGAN CITY STANDARDS AND SPECIFICATIONS.
  - OBTAIN LID, FRAME, COVER, AND MONUMENT FROM THE LOGAN CITY SURVEYOR.
  - INSTALL TO THE SATISFACTION OF THE LOGAN CITY SURVEYOR.
  - ALL CONCRETE USED TO SET, RESTORE, OR RELOCATE MONUMENTS SHALL BE IN COMPLIANCE WITH CONCRETE COLLARS.

## PRE-CAST MANHOLES, JUNCTION BOXES, AND CATCH BASINS, ETC.

- CONTRACTOR SHALL PROVIDE PRE-CAST SHOP DRAWINGS WITH ASSOCIATED CALCULATIONS TO ENGINEER DURING PRE-CONSTRUCTION MEETING FOR REVIEW AND APPROVAL PRIOR TO PURCHASE. ANY REQUIRED CHANGES SHALL BE INCORPORATED PRIOR TO FABRICATION.
- DIMENSIONS OF STRUCTURES ARE BASED ON INSIDE DIMENSIONS. WALL THICKNESS, REBAR REINFORCEMENT, AND PLACEMENT OF FRAMES AND GRATES ARE THE RESPONSIBILITY OF THE PRE-CAST MANUFACTURER AND SHALL BE INCLUDED IN THE PRE-CAST SHOP DRAWINGS.
- ALL CONCRETE SHALL BE CLASS 4000 AT A MINIMUM PER APWA SECTION 03 30 04.
- ALL STEEL REINFORCEMENT SHALL BE 60,000 PSI STEEL.
- EPOXY COATING IS NOT REQUIRED FOR THIS PROJECT.
- ALL PRE-CAST STRUCTURES SHALL BE DESIGNED FOR HL-93 LOADING.
- CONCRETE KNOCKOUT WALLS SHALL BE ALLOWED FOR PRECAST JUNCTION BOXES AND CATCH BASINS EXCEPT UNDER THE FOLLOWING CONDITIONS:
  - BOX DEPTH EXCEEDS 8 FEET.
  - WALL WILL HAVE OTHER ITEMS ATTACHED TO IT SUCH AS A STORM WATER BMP, LADDER, HEADGATE, ETC.
  - SPECIFIED OTHERWISE IN THESE PLANS.
- ALL CATCH BASINS LOCATED WITHIN THE CURB AND GUTTER SHALL BE CONSTRUCTED TO ALLOW INSTALLATION OF A D&L SUPPLY BRAND MODEL I-3517 TYPE L GRATE WITH FRAME AND HOOD (OR EQUIVALENT) UNLESS SPECIFIED OTHERWISE.
- ALL FRAMES AND GRATES FOR SANITARY SEWER MANHOLES AND STORM DRAIN MANHOLES SHALL BE 30" FRAME AND COVER - TYPE A PER APWA PLAN NO. 302. STORM DRAIN LIDS SHALL BE LABELED "STORM DRAIN". SANITARY SEWER LIDS SHALL BE LABELED "SEWER".
- ALL FRAMES AND LIDS INSTALLED IN SIDEWALK SHALL BE SOLID LIDS WITHOUT AIR VENT HOLES.
- ALL SANITARY SEWER AND STORM DRAIN MANHOLES SHALL BE ADJUSTED TO MATCH LONGITUDINAL AND LATERAL SLOPES OF FINISHED SURFACES. TOP OF FRAME SHALL BE 1/4" TO 1/2" BELOW FINISHED ASPHALT AND CONCRETE SURFACES. CONCRETE SURFACES SHALL BE TRANSITIONED TO FINISHED SURFACE OVER A 4" WIDTH.
- WHEN GRATE OR LID IS IN GRASSED AREA, INSTALL LID FLUSH WITH EXISTING SOIL UNLESS INSTRUCTED OTHERWISE ON THE DESIGN PLAN OR DETAILS.
- ALL SANITARY SEWER MANHOLE BASES SHALL BE Poured WITH TROUGHS PER APWA PLAN NO. 411. DEVIATION FROM THIS DUE TO SPECIFIC SITE CONDITIONS SHALL BE IDENTIFIED AND COORDINATED WITH ENGINEER PRIOR TO CONSTRUCTION.
- GROUT ALL WALL PENETRATIONS WITH CEMENT BASED SHRINKAGE RESISTANT GROUT PER APWA SECTION 03 61 00.
- INSTALL CONCRETE COLLARS AT THE EXTERIOR SIDE OF ALL PIPE PENETRATIONS SIMILAR TO MANHOLES AS SHOWN ON APWA PRECAST MANHOLE, PLAN NO. 341.

## GRANULAR BACKFILL BARROW

- GRANULAR BACKFILL BORROW SHALL BE IN ACCORDANCE WITH APWA SECTION 31 05 13 WITH A MAXIMUM PARTICLE SIZE OF 3 INCHES (RATHER THAN 2 INCHES). GRANULAR BACKFILL BORROW CONSIST OF AN A-1 (ASTM D3282) SOIL.
- GRANULAR BACKFILL BORROW SHALL HAVE A MINIMUM CBR VALUE OF 45.
- GRANULAR BACKFILL BORROW SHALL BE PLACED AS PER APWA STANDARDS AND SPECIFICATIONS.

## SEWER ROCK OR WASHED ROCK

- SEWER ROCK OR WASHED ROCK SHALL BE CRUSHED AND WASHED CLASS 5 SEWER ROCK PER APWA 31 05 13.
- SEWER ROCK OR WASHED ROCK MAY ONLY BE USED WHERE SPECIFIED IN THESE PLANS OR AS DIRECTED BY THE ENGINEER.

## UNTREATED BASE COURSE

- PIPE ZONE AND BEDDING AND BACKFILL SHALL BE UNTREATED BASE COURSE MATERIAL CLASS A, B, OR C, GRADE 1/2" IN COMPLIANCE WITH APWA SECTION 32 11 23.
- UNTREATED BASE COURSE MATERIAL USED FOR ROADWAY, CURB AND GUTTER, AND SIDEWALKS SHALL BE CLASS A, GRADE 1/2" OR GRADE 1, WITH A MINIMUM CBR VALUE OF 70 IN COMPLIANCE WITH APWA SECTION 32 11 23.

## HOT MIX ASPHALT

- SEE DETAIL ON DT1 FOR SPECIFIC CROSS SECTION INFORMATION.
- PROVIDE LOGAN CITY WITH SPECIFIED AND SELECTED ASPHALT MIX DESIGNS, AND SELECTED PRIME COAT AND TACK COAT AT PRE-CONSTRUCTION MEETING.
- ALL HOT MIX ASPHALT IN LOGAN CITY RIGHT OF WAY SHALL BE PG 58-28, DM-1/2, MARSHALL MIX PER APWA 32 12 05.
- APPLY TACK COAT, COMPLIANT WITH APWA SECTION 32 12 14, BETWEEN LAYERS OR LIFTS IF THE PREVIOUS PAVEMENT LAYER IS DIRTY OR OLDER THAN 24 HOURS PER APWA SECTION 32 12 16.
- ASPHALT "T" PATCH SHALL BE PERFORMED IN ACCORDANCE WITH APWA PLAN NO. 255 AS AMENDED BY LOGAN CITY.

## ASPHALT AND CONCRETE SAW CUTS AND PATCHES

- ALL ASPHALT AND CONCRETE CUT LOCATIONS REPRESENT FINISHED LOCATIONS. CUTS ARE TO BE NEAT, CLEAN, AND VERTICAL PRIOR TO PATCHING ASPHALT OR CONCRETE.
- SAW CUTS AND FINISHED EDGES, INCLUDING CONCRETE, SHALL BE CLEANED OF OIL, DIRT, AND DEBRIS PRIOR TO APPLICATION OF TACK COAT.
- ANY SAW CUTS REQUIRED PRIOR TO THE FINAL PATCH TO FACILITATE CONSTRUCTION ARE CONTRACTOR WAYS AND MEANS AND WILL NOT BE PAID IN ADDITION TO THE FINAL CUTS. ADDITIONALLY, ANY DAMAGE TO THE SAW CUT EDGE SHALL BE REPAIRED TO MEET LOGAN CITY REQUIREMENTS AT NO ADDITIONAL EXPENSE TO THE CITY.
- ALL SAW CUT EDGES AND FINISHED EDGES SHALL BE TREATED WITH A TACK COAT PRIOR TO THE PLACEMENT OF ASPHALT IN ACCORDANCE WITH APWA SECTION 32 12 14.

## ROADWAY STANDARD SECTION.

- REMOVE EXISTING ASPHALT.
- SCARIFY AND EXCAVATE AWAY EXISTING MATERIAL TO PROVIDE FOR THE FINISHED ROAD SECTION AS LISTED IN ITEM 4 BELOW.
- ROLLER COMPACT TO FIRM AND UNYIELDING EXISTING MATERIAL. PROOF ROLL TEST EXISTING MATERIAL AFTER COMPACTION PER APWA SECTION 32 05 10, SECTION 3.8 PRIOR TO PLACEMENT OF UNTREATED BASE COURSE.
- ROAD SECTION SHALL CONSIST OF 6 INCHES OF COMPACTED IN PLACE UNTREATED BASE COURSE FOR ROADWAY, CURB AND GUTTER, AND SIDEWALKS WITH 8 INCHES OF COMPACTED IN PLACE ASPHALT (PLACED IN TWO LAYERS). PROPER PLACEMENT OF UNTREATED BASE COURSE AND PROPER THICKNESS AND COMPACTION SHALL BE VERIFIED BY SURVEYOR PRIOR TO PLACEMENT OF ASPHALT. A PROOF ROLL TEST IS REQUIRED ON FINISHED UNTREATED BASE COURSE.
- HOT MIX ASPHALT SHALL BE PLACED SUCH THAT FINISHED GRADE IS BETWEEN 1/4 AND 1/2 INCH ABOVE LIP OF GUTTER.
- UNTREATED BASE COURSE AND ASPHALT COMPACTION TESTS BY NUCLEAR DENSITY TESTING DURING PLACEMENT TO ENSURE A HIGH QUALITY ROAD. CORE SAMPLES SHALL NOT BE COLLECTED.

## GRAVITY SANITARY SEWER INSTALLATION (OPEN TRENCH)

- SHOP DRAWINGS AND CUT SHEETS OF ALL SANITARY SEWER MATERIALS SHALL BE PROVIDED TO THE ENGINEER AT THE PRE-CONSTRUCTION MEETING.
- ALL POLYVINYL CHLORIDE (PVC) PIPE SHALL BE IN ACCORDANCE WITH APWA SECTION 33 05 07 AND SECTION 33 31 00.
- ALL PVC SHALL BE SDR 35 FOR DEPTHS LESS THAN 14 FEET AND SDR 26 FOR DEPTHS GREATER THAN 14 FEET.
- CAP ALL SEWER LATERALS RELOCATED OR REMOVED AT THE MAIN USING ROMAC OR EQUIVALENT STAINLESS STEEL WRAP AROUND SADDLE.
- ALL SEWER LATERAL CONNECTIONS SHALL BE BY ROMAC STAINLESS STEEL SANITARY SEWER TAPPING SADDLE WITH STAINLESS STEEL STRAPS PER APWA PLAN NO. 431 AS AMENDED BY LOGAN CITY.
- PIPING SHALL BE INSTALLED IN ACCORDANCE WITH APWA STANDARDS AND SPECS AS AMENDED BY LOGAN CITY PLAN NO 382S.
- TRACER WIRE SHALL BE INSTALLED PER LOGAN CITY STANDARDS AND SPECIFICATIONS ALONG TOP OF PIPE FROM VALVE TO VALVE OR OTHER RISER TYPE.
- GREEN WARNING TAPE LABELED SEWER SHALL BE INSTALLED ABOVE SEWER PIPE PER LOGAN CITY STANDARDS AND SPECIFICATIONS.
- ALL GRAVITY FLOW PIPES (SANITARY SEWER, IRRIGATION, AND STORM DRAIN) SHALL HAVE WATER FLUSHED DOWN THE LINE, AND THEN BE CCTV INSPECTED TO ENSURE PROPER INSTLLATION AND NO LOW POINTS.
- ALL GRAVITY FLOW PIPES 24 INCHES OR LARGER SHALL BE MANDREL TESTED TO ENSURE NO PIPE FLEXURE OR DEFLECTION.

SHEET NO: <span style="font-size: 2em; font-weight: bold;">SN1</span> 2 OF 15	SCALE NO SCALE 1" VERIFY SCALE <small>SCALE = 1/2" SHOWN SCALE IF PLOTTED ON B SIZE PAPER</small>	REVISION BLOCK 100%	DATE: 10-Jul-17 ENG #: 17009	DESIGNED: TDICKINSON DRAFTER: GSTEPHENSON CHECKED: LTROUSER
1000 NORTH 990 TO 1200 EAST		SPECIAL NOTES		
LOGAN CITY ENGINEERING 290 NORTH 100 WEST LOGAN, UTAH 84321		LOGAN CITY UNITED IN SERVICE PUBLIC WORKS DEPARTMENT		

# PROJECT SPECIFIC NOTES

## GRAVITY SANITARY SEWER INSTALLATION (RIGID PVC FOLD AND FORM PIPE LINER)

- THIS METHOD IS TO RECONSTRUCT THE SANITARY SEWER BY THE INSTALLATION OF A POLYVINYL CHLORIDE (PVC) PIPE LINER INTO THE EXISTING SANITARY SEWER. THE PIPE LINER SHALL EXTEND OVER THE LENGTH OF THE PIPE BETWEEN MANHOLES IN A CONTINUOUS, TIGHT FITTING, WATER TIGHT PIPE-WITHIN-A-PIPE.
- THE LINER SHALL BE FABRICATED TO A SIZE WHICH, WHEN INSTALLED, FITS THE INTERNAL CIRCUMFERENCE OF THE PIPE AS SPECIFIED BY THE ENGINEER. ALLOWANCE FOR CIRCUMFERENTIAL EXPANSION DURING INSTALLATION SHALL BE MADE.
- THE LINER MATERIAL SHALL BE MADE ONLY FROM PVC.
- THE MINIMUM LINER LENGTH SHALL SPAN THE DISTANCE FROM MANHOLE TO MANHOLE OF THE PIPE TO BE LINED. THE CONTRACTOR SHALL VERIFY THE LENGTHS IN THE FIELD BEFORE INSERTION OF THE LINER.
- ALL PIPES 4 INCHES TO 15 INCHES SHALL BE SDR 35. ALL PIPES LARGER THAN 15 INCHES SHALL BE SDR 26.
- THE CONTRACTOR SHALL PROVIDE A PVC COMPOUND LINER MEETING THE FOLLOWING REQUIREMENTS:
  - TENSILE STRENGTH (ASTM D-638) OF 5000 PSI.
  - TENSILE MODULUS (ASTM D-638) OF >280,000 PSI
  - FLEXURAL MODULUS (ASTM D-790) OF >280,000 PSI
- DEPENDING ON THE CONDITION OF THE PIPE, AND REVIEW OF THE CCTV INSPECTION, THE CONTRACTOR SHALL PROVIDE ANY NECESSARY POINT REPAIRS IDENTIFIED TO ENSURE THE SUCCESSFUL INSTALLATION OF THE PVC LINER AT NO ADDITIONAL COST TO THE OWNER.
- LOGAN CITY HAS COMPLETED A DETAILED CCTV INSPECTION OF THIS PROJECT. A COPY OF THE VIDEO IS AVAILABLE AS A DOWNLOAD WITH THE BID DOCUMENTS.
- PRODUCT DATA, SHOP DRAWINGS, CUT SHEETS, AND INSTALLATION INSTRUCTIONS SHALL BE PROVIDED TO THE ENGINEER AT THE PRE-CONSTRUCTION MEETING INCLUDING:
  - MATERIAL LIST INCLUDING MANUFACTURER'S NAME AND CATALOG NUMBER FOR EACH ITEM.
  - MANUFACTURER'S RECOMMENDATIONS FOR INSTALLATION.
- NO MATERIALS SHALL BE PURCHASED OR DELIVERED ON SITE UNTIL APPROVED BY ENGINEER.
- UPON APPROVAL OF THE ENGINEER, THE MANUFACTURER'S RECOMMENDATIONS SHALL BECOME THE BASIS OF ACCEPTANCE OF THE PROJECT.
- THE CONTRACTOR SHALL PROTECT THE SEWER LINING MATERIALS BEFORE, DURING, AND AFTER INSTALLATION FOR THE DURATION OF THE PROJECT.
- IN THE EVENT OF DAMAGE TO THE LINING MATERIAL, THE CONTRACTOR SHALL MAKE TIMELY REPAIRS AND REPLACEMENT NECESSARY TO THE APPROVAL OF THE ENGINEER AT NOT ADDITIONAL COST TO THE OWNER.
- THE CONTRACTOR SHALL MAINTAIN THE OPERATING CONDITION OF THE SEWER MAIN LINES DURING THIS PROJECT BY EITHER RE-ROUTING THE FLOWS OR BYPASS PUMPING AT NO ADDITIONAL COST TO THE OWNER.
- THE CONTRACTOR SHALL BE RESPONSIBLE TO TAKE NECESSARY MEASURES TO CONTROL FLOWS FROM SEWER LATERALS TO THE EXTENT NECESSARY FOR PROPER INSTALLATION OF THE PIPE LINER MATERIALS AND TOP HATS.
- THE CONTRACTOR SHALL RESTORE ALL EXISTING CONNECTIONS IN THE EXISTING SANITARY SEWER AND STRUCTURES, AND CARRY OUT SUCH WORK IN A MANNER CONSISTENT WITH THESE CONSTRUCTION DOCUMENTS.
- CONTRACTOR SHALL PREVENT DEBRIS FROM ENTERING THE EXISTING SEWER SYSTEM OR CLEAN SUCH DEBRIS FROM THE EXISTING SEWER SYSTEM AT NO ADDITIONAL COST TO THE OWNER.
- THE CONTRACTOR SHALL CLEAN THE SEWER AND REMOVE ALL DEBRIS, OBSTRUCTIONS, OR ROOTS NECESSARY TO INSTALL THE PVC LINER IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AT NO ADDITION COST TO THE OWNER.
- WHILE THE CONTRACTOR IS PROVIDED THE CCTV DIGITAL DATA FROM LOGAN CITY, THE CONTRACTOR WILL PERFORM A PRE CONSTRUCTION CCTV INSPECTION OF THE EXISTING PIPE. THE CONTRACTOR IS RESPONSIBLE TO LOCATE BREAKS, OBSTACLES, AND SERVICE CONNECTIONS AND TO CAREFULLY INSPECT THE INTERIOR OF THE PIPELINE TO DETERMINE THE LOCATION OF ANY CONDITIONS THAT MAY PREVENT PROPER INSTALLATION OF THE LINER INTO THE PIPELINE AND TO CORRECT THOSE CONDITIONS AT NO ADDITIONAL COST TO THE OWNER.
- THE LINER SHALL BE INSERTED INTO THE SEWER THROUGH EXISTING STRUCTURES WITHOUT MODIFICATIONS TO THE STRUCTURES.
- INSTALLATION SHALL BE PER MANUFACTURER'S RECOMMENDED PROCEDURES.
- WHEN INSTALLATION IS COMPLETE, THE LINER SHALL BE CONTINUOUS OVER THE ENTIRE LENGTH BETWEEN TWO STRUCTURES AND BE FREE FROM VISUAL DEFECTS, BULGES, FOLDS, PIN HOLES, OR OTHER DEFECTS. THE INSTALLATION SHALL BE FREE OF LEAKS AND MUST MEET PRESSURE TESTING REQUIREMENTS RECOMMENDED BY THE MANUFACTURER.
- ANY DEFECTS WHICH AFFECT THE INTEGRITY OR STRENGTH OF THE LINER PIPE SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE FOR THE DURATION OF THE WARRANTY.
- IF THE LINER FAILS TO INSTALL PROPERLY, THE CONTRACTOR SHALL REMOVE THE FAILED LINER AND REPLACE IT WITH A NEW LINER AT NO ADDITIONAL COST TO THE CITY.
- IF, DUE TO BROKEN OR OFFSET PIPE AT THE STRUCTURE WALL, THE PIPE LINER FAILS TO MAKE A TIGHT SEAL, THE CONTRACTOR SHALL, AT CONTRACTOR'S EXPENSE, SEAL THAT POINT WITH A MATERIAL COMPATIBLE WITH THE PVC LINER AND AS APPROVED BY THE ENGINEER.
- AFTER THE PIPE LINER HAS BEEN FORMED IN PLACE, THE CONTRACTOR SHALL RECONNECT THE EXISTING ACTIVE SERVICE CONNECTIONS. THIS SHALL BE DONE WITHOUT EXCAVATION, AND FROM THE INTERIOR OF THE PIPELINE BY MEANS OF A TELEVISION CAMERA AND A CUTTING DEVICE THAT RE-ESTABLISHES THE SERVICE CONNECTION TO 100% OF CAPACITY. CUT EDGES SHALL BE GROUND SMOOTH AND FREE OF SHARP EDGES AND PROTRUSIONS.
- UV CURED "TOP HAT" SERVICE CONNECTIONS MATCHING THE EXISTING SERVICE SIZE SHALL BE INSTALLED AT EACH SERVICE OR LATERAL AFTER THE HOLE HAS BEEN CUT. TOP HAT MATERIAL SHALL BE COMPATIBLE WITH LATERAL PIPE MATERIAL AND THE MATERIAL USED TO LINE EXISTING PIPING. TOP HATS SHALL EXTEND AT LEAST 4-INCHES INTO SERVICE LATERALS, FORM A TIGHT FIT TO THE EXISTING SEWER LATERAL PIPING, AND BE TIGHT FITTING AND SEALED TO PIPE LINER AT THE MAIN.
- PIPE LINER SHALL FORM A TIGHT AND COMPLETE SEAL AT MANHOLES. IF, DUE TO A BROKEN OR OFFSET PIPE AT THE MANHOLE WALL, THE PIPE LINER FAILS TO MAKE A TIGHT SEAL, THE CONTRACTOR SHALL APPLY A SEAL AT THAT POINT, THE SEAL SHALL BE OF A RESIN MIXTURE COMPATIBLE WITH THE PIPE MATERIAL.
- ALL GRAVITY FLOW SEWER PIPES SHALL HAVE WATER FLUSHED DOWN THE LINE, AND THEN BE CCTV INSPECTED TO ENSURE PROPER INSTALLATION PER MANUFACTURER RECOMMENDATIONS AND NO LOW POINTS. A DIGITAL COPY OF POST CONSTRUCTION CCTV INSPECTION SHALL BE PROVIDED TO THE CITY.

## CCTV INSPECTION

- CONTRACTOR SHALL PERFORM VIDEO INSPECTION OF SEWER LINES AS SPECIFIED IN APWA STANDARDS AN SPECIFICATIONS, GENERAL NOTES, AND PROJECT SPECIFIC NOTES.
- CCTV PRE-WORK INSPECTION:
  - CONTRACTOR SHALL PERFORM VIDEO INSPECTION OF THE SEWER LINES AND SERVICE LATERALS BY CLOSED CIRCUIT TELEVISION (CCTV).
  - INSPECTION OF PIPELINES SHALL BE PERFORMED BY EXPERIENCED PERSONNEL TRAINED IN LOCATING BREAKS, OBSTACLES, AND SERVICE LATERAL CONNECTIONS BY CCTV.
  - THE INTERIOR OF THE PIPELINE SHALL BE INSPECTED TO DETERMINE THE LOCATION OF ANY CONDITION THAT MAY PREVENT THE PROPER INSTALLATION OF PRODUCT USING THE METHODS SPECIFIED, AND IT SHALL BE NOTED SO THAT THESE CONDITIONS CAN BE CORRECTED.
  - CONDITIONS FOUND THAT WILL PREVENT PROPER INSTALLATION OF PRODUCTS SPECIFIED SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE CITY TO DETERMINE THE BEST COURSE OF ACTION.
- CCTV POST-WORK INSPECTION
  - THE CONTRACTOR SHALL PERFORM VIDEO INSPECTION OF SEWER LINES TO ENSURE PROPER INSTALLATION OF PIPING, PRODUCTS SPECIFIED, AND SERVICE LATERALS.
  - CCTV INSPECTION OF PIPELINES SHALL BE PERFORMED BY EXPERIENCED PERSONNEL TRAINED IN CCTV INSPECTIONS.
  - A COPY OF THE CCTV VIDEO SHALL BE PROVIDED TO THE CITY FOR REVIEW AND APPROVAL.

## CONCRETE COLLARS

- CONCRETE COLLARS SHALL BE INSTALLED IN ACCORDANCE WITH UTAH APWA AS AMENDED BY LOGAN CITY PLAN NO. 361 AND:
  - PLAN NO. 413 FOR SANITARY SEWER MANHOLES,
  - PLAN NO. 362 FOR STORM DRAIN AND IRRIGATION MANHOLES,
  - UTILITY PROVIDER REQUIREMENTS FOR OTHER UTILITY MANHOLES
- SEE ALSO DETAILS ON DT1.
- CONCRETE MIX TO BE USED FOR CONCRETE COLLARS SHALL BE PROVIDED TO THE ENGINEER AT THE PRE-CONSTRUCTION MEETING SPECIFYING WHO WILL BE PROVIDING THE CONCRETE.
- CONCRETE USED IN CONCRETE COLLARS SHALL BE LEGRANDE JOHNSON'S UDOT 70-B WITH FIBER MIX, PARSONS AA-AE HP WITH FIBER ADD IN, OR EQUIVALENT HIGH EARLY STRENGTH MESH MIX TO UDOT STANDARDS.
- CONCRETE CURING AGENT SHALL BE APPLIED. AGENT SHALL BE A TYPE ID CASS A (CLEAR WITH FUGITIVE DYE), MEMBRANE FORMING COMPOUND PER APWA SECTION 03 39 00. SPECIFIC AGENT TO BE USED AND MANUFACTURER LITERATURE CONCERNING THE AGENT SHALL BE PROVIDED IN THE PRE-CONSTRUCTIO MEETING.
- ALL CONCRETE COLLARS SHALL BE 8 INCHES MIN. THICK AND 12 INCHES MIN. WIDE.
- ALL ASPHALT CUTS FOR CONCRETE COLLARS SHALL BE NEAT, VERTICAL, AND CONCENTRIC. ALL CUTS SHALL BE CLEANED OF ALL DEBRIS, OIL, AND DIRT PRIOR TO PLACING CONCRETE.
- FINISHED GRADES SHALL HAVE THE ASPHALT FINISHED  $\frac{1}{8}$  TO  $\frac{1}{4}$  INCH ABOVE THE CONCRETE COLLAR. IF IT EXCEEDS  $\frac{1}{2}$  INCH AT ANY PLACE ON THE COLLAR OR LID, THE COLLAR WILL BE REPLACED AND THE LID AND FRAME ADJUSTED AT NO ADDITIONAL COST TO LOGAN CITY.



LOGAN CITY ENGINEERING  
 290 NORTH 100 WEST  
 LOGAN, UTAH 84321

1000 NORTH 990 TO 1200 EAST  
 SPECIAL NOTES CONTINUED

DESIGNED: TDICKINSON	DRAWN: GSTEPHENSON	CHECKED: LFOUSER
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DATE: 10-Jul-17	ENG'N: 17009
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REVISION BLOCK  
 100%

SCALE  
 NO SCALE  
 1" = 10' SCALE  
 VERIFY SCALE  
 SCALE = 1/2" SHOWN SCALE  
 IF PLOTTED ON B SIZE PAPER

SHEET NO:  
**SN2**  
 3 OF 15

# STORM WATER POLLUTION PREVENTION INFORMATION

## SITE EVALUATION, ASSESSMENT, AND PLANNING

PROJECT SITE/NAME: 1000 NORTH 990 TO 1200 EAST  
 PROJECT LOCATION: 1000 NORTH 990 TO 1200 EAST, SEE COVER SHEET  
 CITY: LOGAN, UTAH 84321  
 COUNTY: CACHE  
 LATITUDE/LONGITUDE (GOOGLE EARTH)  
 LAT: 41°45'00" NORTH LONG: 111°48'21.50" WEST

## CONTACT INFORMATION AND RESPONSIBLE PARTIES:

OWNER: LOGAN CITY  
 290 NORTH 100 WEST  
 LOGAN, UT 84321  
 (435) 716-9152 (PUBLIC WORKS)

PROJECT MANAGER:  
 TOM DICKINSON  
 LOGAN CITY ENGINEERING  
 290 NORTH 100 WEST  
 LOGAN, UT 84321  
 (435) 716-9161  
 TOM.DICKINSON@LOGANUTAH.ORG

STORMWATER MANAGER AND SWPPP CONTACT  
 TBD-THIS IS TO BE FILLED IN BY THE CONTRACTOR

LOGAN CITY REGULATORY STORMWATER INSPECTOR  
 LYNN MAYS  
 LOGAN CITY STREETS AND STORMWATER FOREMAN  
 290 NORTH 100 WEST  
 LOGAN, UT 84321  
 (435) 716-9167 (DAY)  
 (435) 716-9090 (AFTER HOURS EMERGENCY)  
 LYNN.MAYS@LOGANUTAH.ORG

## NATURE AND SEQUENCE OF CONSTRUCTION

THE CITY IS PROPOSING A 2 OPTIONS BID PACKAGE TO EITHER OPEN TRENCH REPLACE APPROXIMATELY 1300 LINEAL FEET OF EXISTING AND FAILING 8-INCH CONCRETE SEWER PIPE OR LINING IT WITH A RIGID PVC FOLD AND FORM PIPE LINER.

BEST MANAGEMENT PRACTICES (BMPS) FOR ALL OF THE ACTIVITIES WILL BE APPLIED TO THE SITE TO PROTECT THE SOUTHWEST FIELD CANAL AND LOGAN RIVER FROM POSSIBLE CONTAMINATION. BI-WEEKLY INSPECTIONS SHALL BE PERFORMED BY THE CONTRACTOR'S RSI INSPECTOR FOR THE DURATION OF CONSTRUCTION.

THE FUNCTION OF THIS ACTIVITY IS PUBLIC.  
 ESTIMATED START DATE: MAY 2017  
 ESTIMATED COMPLETION: AUGUST 2017

## SOILS, SLOPES, VEGETATION, AND CURRENT DRAINAGE PATTERNS

THE SOILS ON THIS SITE ARE RICKS GRAVELLY LOAM AS OBTAINED BY THE NRCS SOILS SURVEY WEBSITE. INFILTRATION RATES RANGE FROM 0.3 MM/SEC TO 0.5 MM/SEC.

**SLOPES:** SLOPES ON THIS PROJECT ARE FROM 2 TO 10 PERCENT. SITE CONDITIONS ARE NOT SUBJECT TO EROSION IN THEIR PRE-CONSTRUCTION CONDITION.

**DRAINAGE PATTERNS:** DRAINAGE PATTERNS ARE FROM EAST TO WEST

**VEGETATION:** VEGETATION IS DEVELOPED ASPHALT, GRAVEL, AND GRASS LANDSCAPING.

## CONSTRUCTION SITE ESTIMATES

CONSTRUCTION SITE AREA TO BE DISTURBED:	0.5 ACRES
TOTAL PROJECT AREA:	0.5 ACRES
PERCENT IMPERVIOUS AREA BEFORE CONSTRUCTION:	100%
PERCENT IMPERVIOUS AREA AFTER CONSTRUCTION:	100%
RUNOFF CN NUMBER AFTER CONSTRUCTION:	98 SAME AS BEFORE CONSTRUCTION
100-YEAR PEAK RUNOFF BEFORE CONSTRUCTION:	4.0 CFS
100-YEAR PEAK RUNOFF AFTER CONSTRUCTION:	1.0 CFS
DETENTION REQUIREMENTS:	0 ACRE-FEET

## RECEIVING WATERS

THE RECEIVING WATER FOR THIS PROJECT IS THE LOGAN NORTHERN CANAL.

## SITE FEATURES AND SITE SENSITIVE AREAS TO BE PROTECTED

THERE ARE NOT SITE SENSITIVE AREAS.

## ENDANGERED SPECIES

THERE ARE NO ENDANGERED SPECIES ASSOCIATED WITH THIS SITE. IT IS ALL DEVELOPED ROADWAY.

## HISTORIC PRESERVATION

THERE ARE NO HISTORIC SITES LISTED ON THIS PROJECT

## GENERAL LOCATION MAP

FOR THE GENERAL LOCATION MAP, SEE COVER SHEET.

## BMP EVALUATION FOR 90TH PERCENTILE STORM

THE GENERAL STORMWATER MS4 PERMIT REQUIRES PERMITTED AGENCIES TO RETAIN, INFILTRATE, OR EVAPORATE THE 90TH PERCENTILE STORM WHERE POSSIBLE. THE ENGINEER HAS COMPLETED AN ANALYSIS ON THIS SITE AND HAS DETERMINED IT IS NOT POSSIBLE FOR THIS SITE FOR THE FOLLOWING REASONS:

1. THERE IS INSUFFICIENT RIGHT OF WAY TO CONSTRUCT ADDITIONAL STORM WATER BMPS TO RETAIN, INFILTRATE, OR EVAPORATE 0.66 INCHES OF WATER WITHIN THE PROJECT AREA AND BEFORE THE DISCHARGE INTO THE CANAL. ALTERNATIVES EVALUATED INCLUDED SURFACE BMPS SUCH AS RETENTION PONDS, MANY COMMON LID METHODS, AND INCREASED VEGETATIVE COVER.
2. THE NEIGHBORING PROPERTY IS ABOVE THE ELEVATION OF THE ROAD AND ALREADY DEVELOPED AS PART OF UTAH STATE UNIVERSITY. THIS ROAD IS A MAJOR CORRIDOR FOR UTILITIES, TELECOMMUNICATIONS, WATER, SEWER, AND ELECTRIC UTILITIES. THE DENSITY OF UTILITIES IS PREVENTING THE CITY FROM CONSTRUCTING UNDERGROUND DETENTION OR RETENTION FACILITIES. THE COST OF RELOCATING THESE UTILITIES WOULD BE UNREASONABLE.

AS A RESULT, THE ENGINEER HAS WORKED WITH U.S.U TO ADDRESS WATER QUALITY AND QUANTITY BY INSTALLING SUBSTANTIAL DETENTION AND TREATMENT FROM THE LARGE PARKING LOT BY STADIUM DRIVE AND ON THE PARKING AREA ASSOCIATED WITH THE SPECTRUM. THIS WILL BE A SIGNIFICANT IMPROVEMENT OVER THE EXISTING CONDITION BY REDUCING OVERALL EXISTING STORM WATER FLOWS BY ABOUT 30 CFS FROM THE SYSTEM AND TREATING THE STORM WATER FROM THE PARKING FOR THE REMOVAL OF NUTRIENTS AND SEDIMENTS.

## SWPPP REQUIREMENTS AND BMPS

1. SINCE PROJECT IS LESS THAN 1.0 ACRE, NO SWPPP IS REQUIRED.
2. HOWEVER, THE CONTRACTOR SHALL ENSURE THAT NO POLLUTION LEAVES THE DESIGNATED WORK ZONE BY PREPARING AN EROSION AND SEDIMENT CONTROL PLAN (SWPP) AND IMPLEMENTING STANDARD BMP'S AND COMMON PRACTICES APPROVED BY THE ENGINEER AND THE CITY'S STORMWATER INSPECTOR CONSISTING OF DOCUMENTING ON A COPY OF THE PLANS HOW AND WHERE THE APPROPRIATE BMPS WILL BE IMPLEMENTED.
3. THE CONTRACTOR SHALL PROVIDE THE SWPP TO THE ENGINEER AND THE CITY'S STORMWATER INSPECTOR BEFORE THE PRE-CONSTRUCTION MEETING.
4. SWPP BMPS SHALL BE INSTALLED PRIOR TO ANY OTHER CONSTRUCTION ACTIVITIES.
5. THE CONTRACTOR SHALL INCLUDE THE ASSOCIATED BMPS FOR EACH OF THE POSSIBLE CONTAMINANT SOURCES INCLUDED IN THE ASSOCIATED POTENTIAL POLLUTANTS INCLUDED ON THIS SHEET. THE POTENTIAL SOURCES IN BOLD TYPE ARE EXPECTED BY THE ENGINEER TO BE THE MOST LIKELY TO CAUSE CONTAMINATION AND SHALL BE CLEARLY ADDRESSED IN THE SWPP.
6. THE CONTRACTOR IS RESPONSIBLE FOR ALL SITE INSPECTIONS BY A CERTIFIED RSI, OR EQUIVALENT, INSPECTOR ON A BI-WEEKLY BASIS OR MORE FREQUENTLY IF REQUIRED AS FOLLOWS:
  - 6.1. RAINSTORM EXCEEDS  $\frac{1}{4}$  INCH OF RAIN IN 24 HOURS AS MEASURED AT EITHER THE USU WEATHER STATION OR KVNU RADIO STATION.
  - 6.2. DISCHARGE FROM SITE POTENTIALLY ENTERS OR IMPACTS A WETLAND OR OTHER WATER OF THE STATE OF UTAH CONSIDERED SENSITIVE OR CURRENTLY ON OR A TRIBUTARY TO A WATER OF THE STATE OF UTAH ON THE 303-D LIST FOR IMPAIRED WATERS.
7. INSPECTIONS SHALL BE CONTINUED UNTIL SITE OBTAINS PERMANENT STABILIZATION AS DEFINED BY THE UPDES CONSTRUCTION GENERAL PERMIT.

## DEWATERING REQUIREMENTS AND BMPS

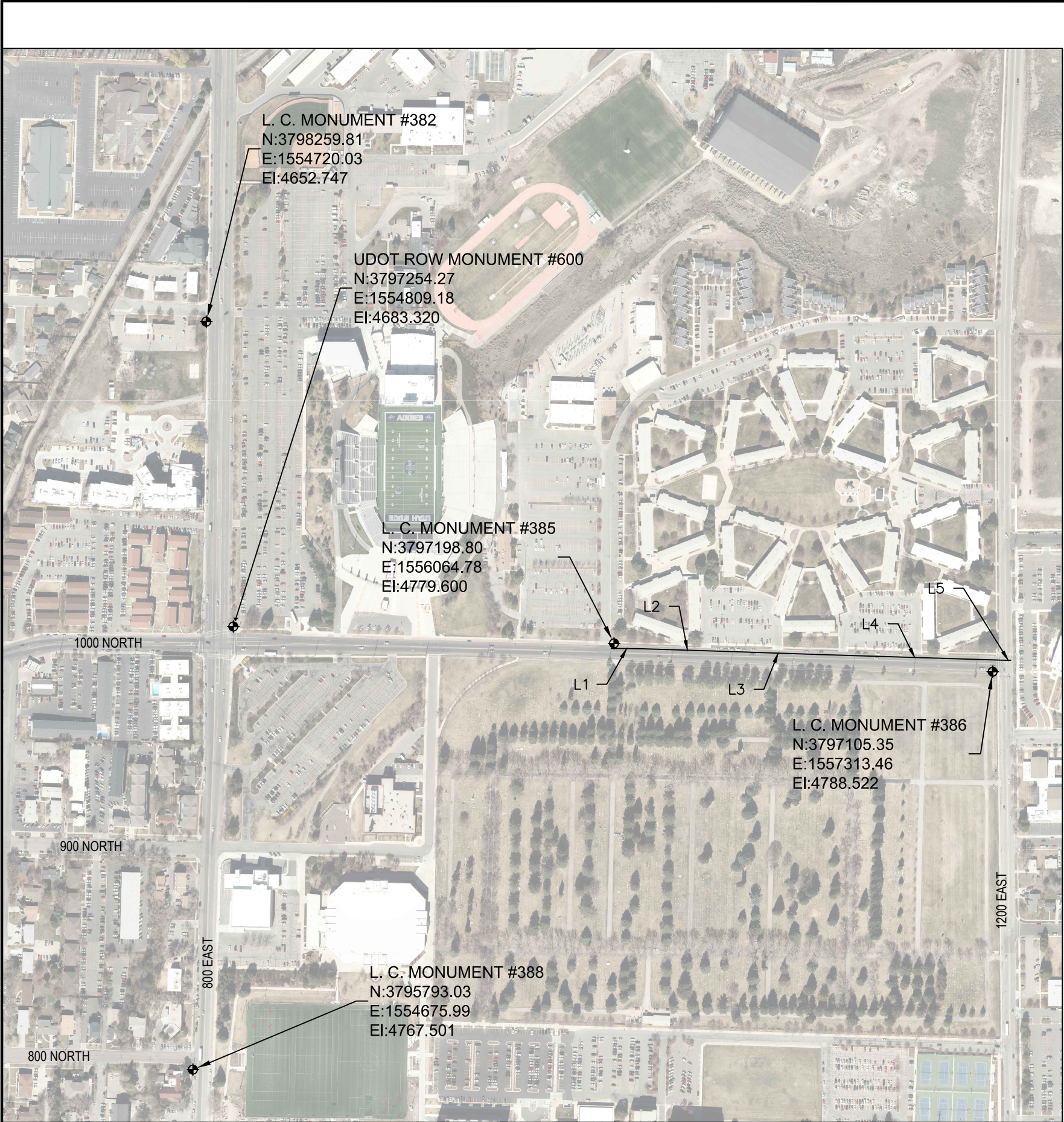
- 1.1. CONTRACTOR SHALL COMPLY WITH GENERAL PERMIT FOR CONSTRUCTION DEWATERING AND HYDROSTATIC TESTING AS REQUIRED BY THE STATE OF UTAH DIVISION OF WATER QUALITY, DEPARTMENT OF ENVIRONMENTAL QUALITY (UTG070000) WHERE APPLICABLE.
- 1.2. THE CONTRACTOR SHALL COMPLY WITH ALL SELF MONITORING REQUIREMENTS OF UTG070000. COPIES OF COMPLIANCE DOCUMENTATION SHALL BE KEPT ONSITE AND A COPY PROVIDED TO THE CITY. COMPLIANCE WITH THE UTG070000 INCLUDES BUT IS NOT LIMITED TO:
  - 1.2.1. OBTAIN PERMITS,
  - 1.2.2. ENSURE DISCHARGES ARE IN COMPLIANCE WITH WATER QUALITY STANDARDS,
  - 1.2.3. PROVIDE, INSTALL, AND MAINTAIN BMPS,
  - 1.2.4. PERFORM AND DOCUMENT DAILY OBSERVATIONS AND REPORTS,
  - 1.2.5. PERFORM AND DOCUMENT WEEKLY INSPECTIONS AND REPORTS,
  - 1.2.6. PERFORM AND SEND TO THE STATE WEEKLY GRAB SAMPLES, AND
  - 1.2.7. COMPLETE AND MANAGE REQUIRED REPORTS AND DOCUMENTATION.

## POTENTIAL SOURCES OF POLLUTION

POTENTIAL POLLUTANT MATERIAL	ACTUAL POLLUTANT	POLLUTANT SOURCE	MANAGEMENT PRACTICE
<b>SEDIMENT/TOTAL SUSPENDED SOLIDS</b>	SEDIMENT	EROSION OF DISTURBED SOILS	MINIMIZE SOIL DISTURBANCE. INSTALL BMPS
SOILS STABILIZATION MATERIAL	VARIOUS MATERIALS BOTH FLOATABLE AND SOLUBLE	DISTURBED AREAS WHERE SLOPES OR SUSCEPTIBLE SOIL TYPES ARE EXPOSED	INSTALL SEDIMENT CONTROL BMPS
CONCRETE-WHITE/SOLID GREY	LIMESTONE, SAND, pH, CHROMIUM	EXTRA CONCRETE WHEN POURING CONCRETE	CLEAN UP EXCESS AND EXTRA CONCRETE AND DISPOSE OF AT SPECIFIED LOCATION. SEE ALSO CONCRETE WASHOUT
OILS-BROWN OILY PETROLEUM AND HYDROCARBONS	MINERAL OIL, HYDRAULIC FLUID, MOTOR OIL, ETC.	VEHICLES AND EQUIPMENT USED IN CONSTRUCTION	NO OILS WILL BE CHANGED ON SITE. LEAKS WILL BE REPAIRED IMMEDIATELY.
<b>ASPHALT AND PAVING - BLACK SOLIDS</b>	OIL AND PETROLEUM DISTILLAGES	ASPHALT PAVING OPERATIONS	PAVING OPERATIONS WILL NOT BE PERFORMED WITHIN 8 HOURS OF EXPECTED STORMS EXCEEDING 0.5 INCH.
<b>GREASE</b>	GREASE AND LUBE OIL	VEHICLES AND EQUIPMENT USED IN CONSTRUCTION	KEEP EQUIPMENT CLEAN AND WIPED DOWN
<b>ANTIFREEZE</b>	ETHYLENE GLYCOL	ENGINE COLLUANT	FIX LEAKS IMMEDIATELY. REPAIRS WILL NOT BE MADE ON SITE
<b>CONSTRUCTION DEWATERING</b>	TSS/SEDIMENTS	DEWATERING ACTIVITIES	CONTRACTOR TO OBTAIN PERMIT IF DEWATERING IS REQUIRED.
<b>FUELS</b>	BENZENE, ETHYL BENZENE, TOULENE, XYLENE, MTBE, PETROLEUM DISTALLATE, OILS/GREASES, NAPHTHALEN, COAL OIL	USED IN VEHICLES AND POWER EQUIPMENT	FUELING WILL NOT BE ALLOWED ON SITE UNLESS OVER AN IMPERMEABLE SURFACE WITH AN EMERGENCY CLEANUP KIT AT THE LOCATION
PESTICIDES AND INSECTICIDES, FUNGICIDES, HERBICIDES, AND RODENTICIDES	CHLORINATED HYDROCARBONS, ORANOPHOSPHATES, CARBAMATES, ARSENIC	USED FOR CONTROL OF PESTS DURING REVEGETATION	APPLICATION WILL BE PER MANUFACTURER INSTRUCTIONS. EXCESS OR LEFT OVER PESTICIDES WILL BE IMMEDIATELY REMOVED FROM SITE
CONCRETE CURING COMPOUNDS - CREAMY WHITE LIQUID	WHITE PIGMENTED LIQUID TYPE 2. (VARIES BY MANUFACTURER)	USED FOR CONTROL OF CONCRETE CURING	APPLICATION WILL BE PER MANUFACTURER INSTRUCTIONS. EXCESS OR LEFT OVER WILL BE REMOVED FROM SITE
<b>CONCRETE WASHOUT WATER</b>	pH	CONCRETE TRUCKS AND PUMP TRUCKS	WASH WATER FROM CONCRETE TRUCKS WILL BE CONTAINED IN A LEAK PROOF LOCATION DESIGNATED BY THE CONTRACTOR
<b>TRASH</b>	SOLID WASTES	TRASH LEFT OVER FROM CONSTRUCTION ACTIVITIES	REMOVE ALL TRASH FROM SITE DAILY. DO NOT DISPOSE OF TRASH IN HOLES OR TRENCHES
<b>SANITARY WASTE MANAGEMENT</b>	BACTERIA, PARASITES, VIRUSES	FECAL COLIFORM, BACTERIA ASSOCIATED WITH HUMAN OR ANIMAL WASTES	NO PUBLIC RESTROOMS AVAILABLE. CONTRACTOR SHALL PROVIDE PORTABLE FACILITIES AND ENSURE THEY ARE SECURED FROM TIPPING AND ARE MAINTAINED
FERTILIZERS - LIQUID AND SOLID GRAIN	NITROGEN, PHOSPHORUS	FERILIZERS USED IN RESTORING VEGETATION	APPLICATION WILL BE PER MANUFACTURER INSTRUCTIONS. EXCESS WILL BE PROMPTLY REMOVED FROM SITE

## BEST MANAGEMENT PRACTICES

SPECIFIC BMPS WILL BE SPECIFIED BY THE CONTRACTORS SWPPP.



SURVEY CONTROL MONUMENTS				
Point #	Elevation	Northing	Easting	Description
600	4683.32	3797254.27	1554809.18	BC-UDOT ROW 35+50_50 LT
382	4652.75	3798259.81	1554720.03	GPS MON 382B
385	4779.60	3797198.80	1556064.78	GPS MON 385
386	4788.52	3797105.35	1557313.46	GPS MON 386
388	4767.50	3795793.03	1554675.99	GPS MON 388

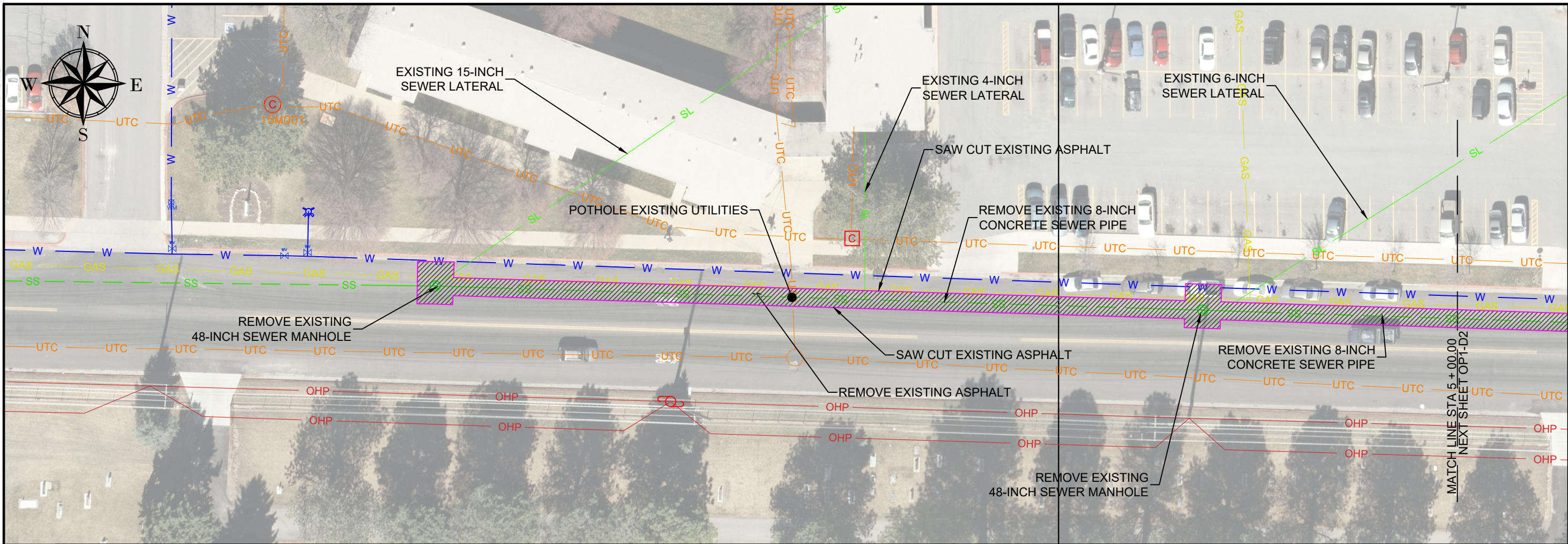
1000 NORTH SURVEY CONTROL				
Line #	Length	Direction	Start Point	End Point
L1	102.42	S88° 20' 16.10"E	(3797182.17, 1556055.23)	(3797180.97, 1556157.61)
L2	298.54	S89° 07' 24.98"E	(3797180.97, 1556157.61)	(3797171.57, 1556456.04)
L3	300.20	S88° 56' 38.91"E	(3797171.57, 1556456.04)	(3797161.56, 1556756.03)
L4	600.47	N0° 12' 41.88"E	(3797161.56, 1556756.03)	(3797143.00, 1557356.25)
L5	17.13	N0° 12' 41.88"E	(3797143.00, 1557356.25)	(3797143.16, 1557373.38)

1. ALL CONTROL IS TIED TO LOGAN CITY MONUMENTS.
2. DIGITAL FILES IN CIVIL 3D (2017) WILL BE PROVIDED TO THE SURVEYOR TO SIMPLIFY STAKING. DESIGN FILES INCLUDE ALIGNMENTS AND PROFILES FOR ALL TBCS AND CENTER LINES.

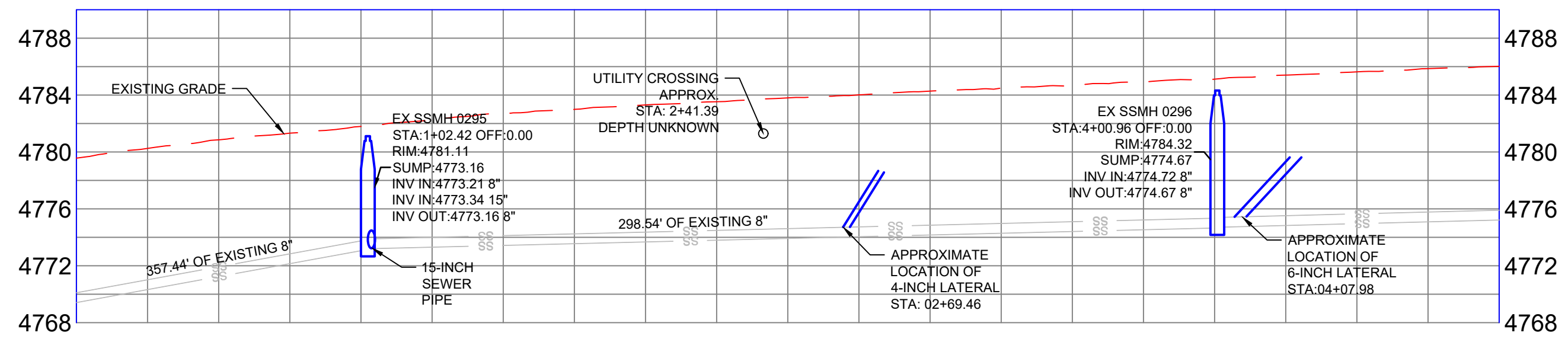
SHEET NO: **S1** 5 OF 15  
 SCALE: NO SCALE  
 VERIFY SCALE: 1" = 100'  
 SCALE = 1/2" SHOWN SCALE IF PLOTTED ON B SIZE PAPER  
 REVISION BLOCK: 100%  
 DATE: 10-JUL-17  
 DESIGNED: TDICKINSON  
 DRAFTED: GSTEPHENSON  
 CHECKED: LFOUSER  
 ENG'G: 17009  
 1000 NORTH 990 TO 1200 EAST  
 SURVEY CONTROL  
 LOGAN CITY ENGINEERING  
 290 NORTH 100 WEST  
 LOGAN, UTAH 84321  
 LOGAN CITY UNITED IN SERVICE PUBLIC WORKS DEPARTMENT

PRINT DATE/TIME: 7/10/17 7:30 AM

PROJECT FILE LOCATION: G:\public\Engineering File System\Projects\2017\ENG\17009 - 1000 NORTH 990 E TO 1200 E SEWER DESIGN (CAD Files)\SHEET(S)\17009-OPTION1.dwg



# SEWER CL - PROFILE



4780.86	4781.79	4782.72	4783.31	4783.80	4784.28	4784.68	4785.12	4785.63
4780.856	4781.794	4782.722	4783.307	4783.802	4784.279	4784.678	4785.119	4785.632
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0+50	1+00	1+50	2+00	2+50	3+00	3+50	4+00	4+50

SHEET NO: **OP1-D1**  
6 OF 15

0'  
20'  
40'  
1" = 40'  
SCALE

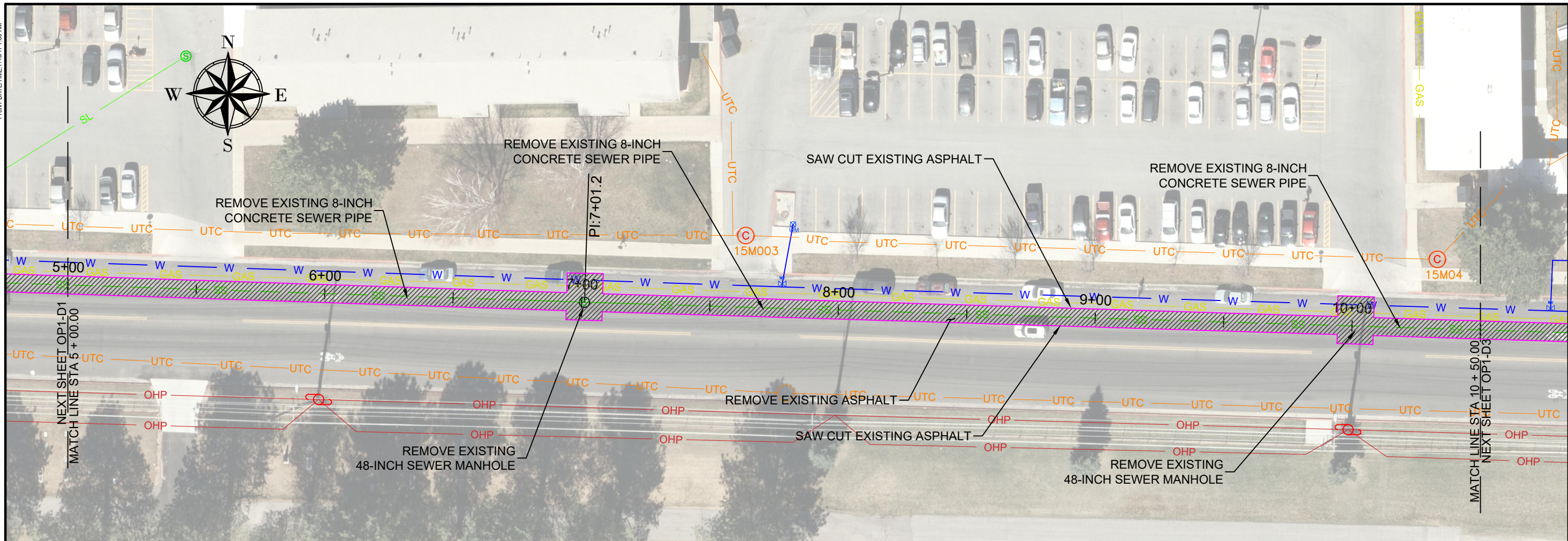
DESIGNED: THICKINSON	DATE: 10-JUL-17	REVISION BLOCK: 100%
DRAWN: GSTEPHENSON	ENG #: 17009	
CHECKED: LHOUSER		

1000 NORTH 990 TO 1200 EAST  
OPTION 1 DEMO  
STATION 0+00.00 TO 5+00.00

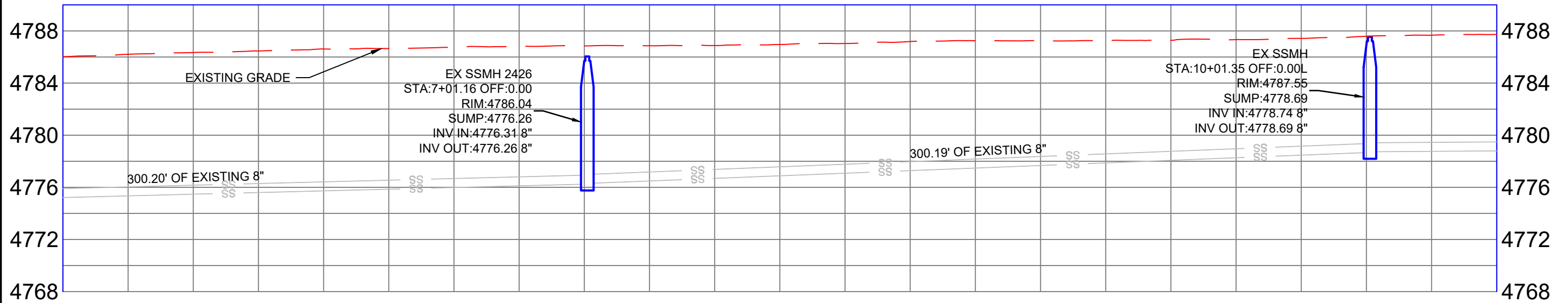
LOGAN CITY ENGINEERING  
290 NORTH 100 WEST  
LOGAN, UTAH 84321

PRINT DATE/TIME: 7/10/17 7:30 AM

PROJECT FILE LOCATION: G:\public\Engineering File System\Projects\2017\ENGIN\17005 - 1000 NORTH 990 E TO 1200 E SEWER DESIGN (CAD Files)\SHEET(S)\17005-OPTION1.dwg



### SEWER CL - PROFILE



4786.34	4786.343	4786.62	4786.616	4786.73	4786.730	4786.85	4786.853	4786.88	4786.879	4787.03	4787.034	4787.25	4787.246	4787.26	4787.262	4787.33	4787.333	4787.59	4787.591
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5+50	6+00	6+50	7+00	7+50	8+00	8+50	9+00	9+50	10+00										

LOGAN CITY ENGINEERING  
290 NORTH 100 WEST  
LOGAN, UTAH 84321

LOGAN CITY UNITED IN SERVICE  
PUBLIC WORKS DEPARTMENT

1000 NORTH 990 TO 1200 EAST  
OPTION 1 DEMO  
STATION 5+00.00 TO 10+50.00

DESIGNED: THICKINSON  
DRAFTED: GSTEPHENSON  
CHECKED: LIHOUSER

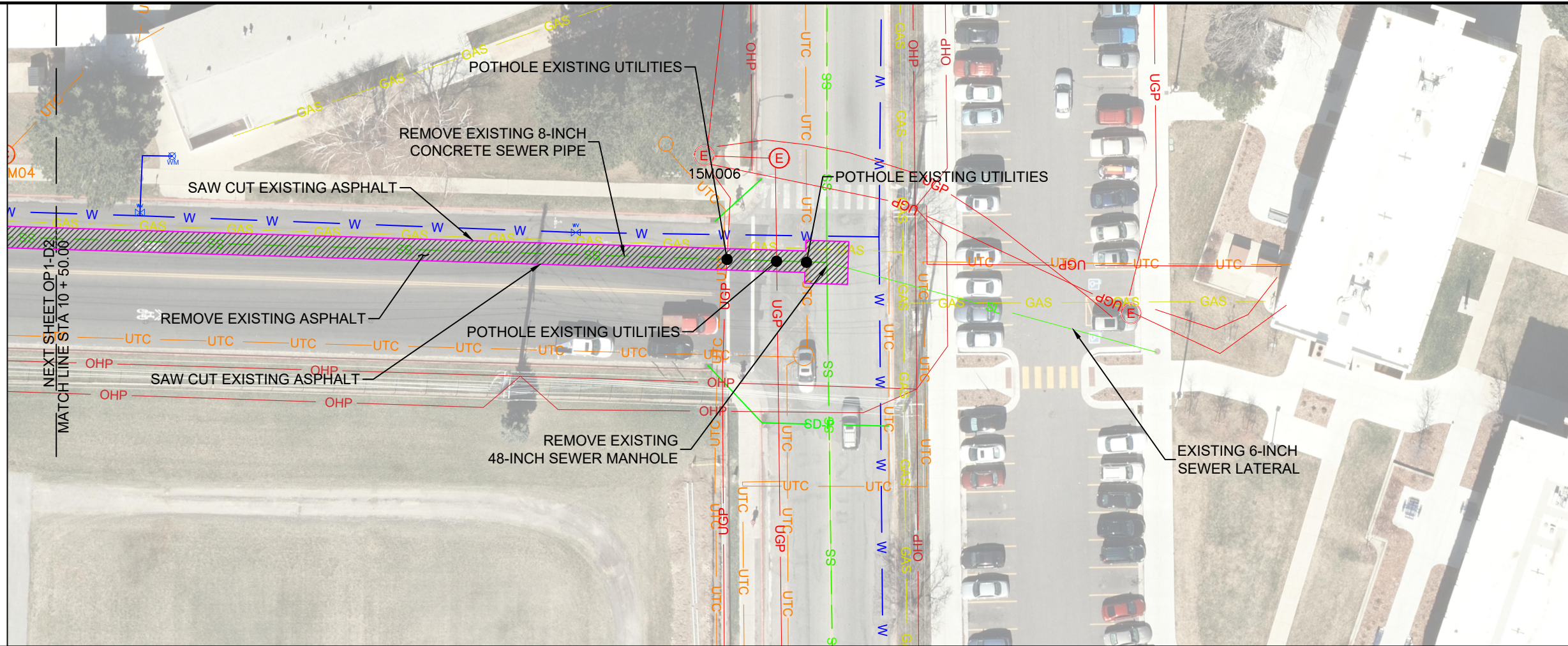
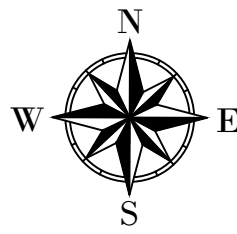
DATE: 10-JUL-17  
ENG #: 17009

REVISION BLOCK  
100%

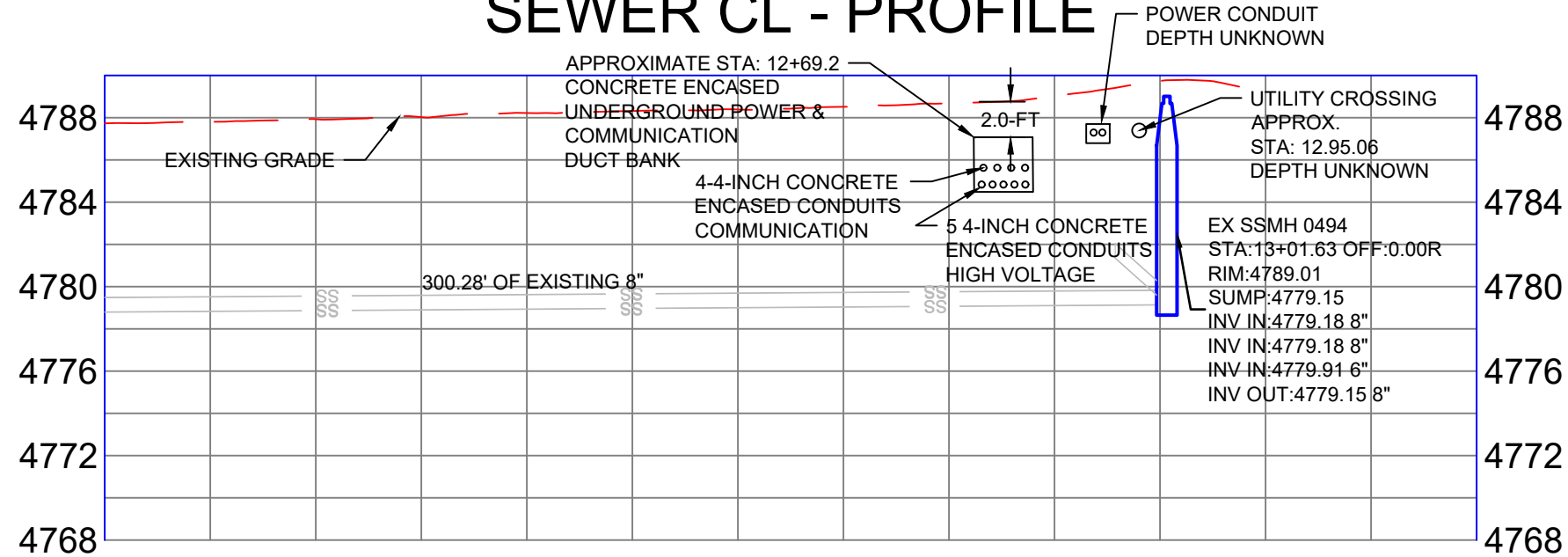
SHEET NO: OP1-D2  
7 OF 15

0'  
20'  
40'  
1" = 40'  
SCALE





## SEWER CL - PROFILE

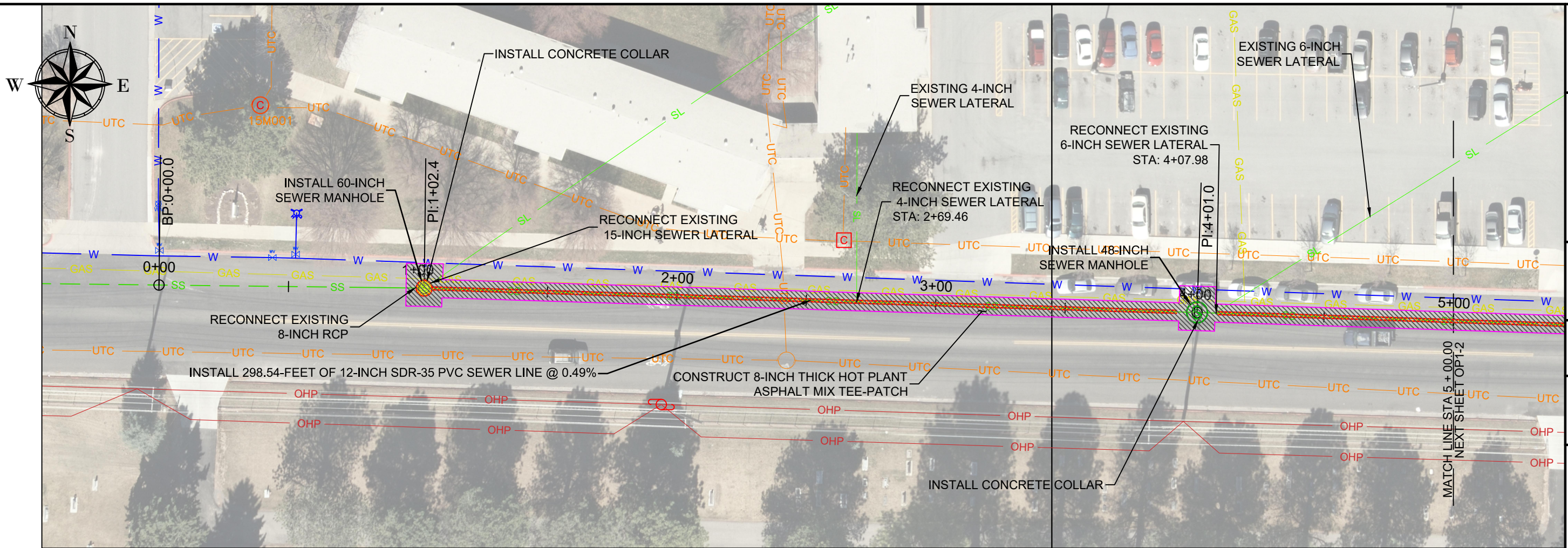


4787.93	4787.927	4788.22	4788.220	4788.39	4788.386	4788.68	4788.678	4789.74	4789.742	
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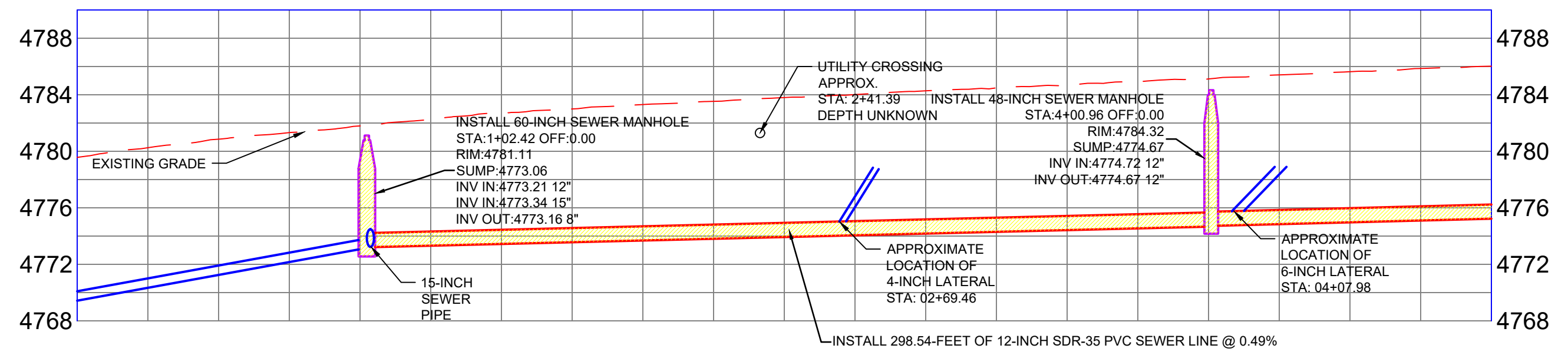
	<b>LOGAN CITY ENGINEERING</b> 290 NORTH 100 WEST LOGAN, UTAH 84321	1000 NORTH 990 TO 1200 EAST OPTION 1 DEMO STATION 10+50.00 TO END	SHEET NO: <b>OP1-D3</b> 8 OF 15
DESIGNED: THICKINSON DRAFTED: GSTEPHENSON CHECKED: LHOUSER		DATE: 10-JUL-17 ENG #: 17009	
REVISION BLOCK 100%		SCALE 1" = 40' 0' 20' 40'	

PRINT DATE/TIME: 7/10/17 7:30 AM

PROJECT FILE LOCATION: G:\public\Engineering File System\Projects\2017\ENG\17009-1000 NORTH 990 E TO 1200 E SEWER DESIGN (CAD Files)\SHEET(S)\17009-OPTION1.dwg



### SEWER CL - PROFILE



4780.86	4781.79	4782.72	4783.31	4783.80	4784.28	4784.68	4785.12	4785.63
4780.856	4781.794	4782.722	4783.307	4783.802	4784.279	4784.678	4785.119	4785.632
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0+50	1+00	1+50	2+00	2+50	3+00	3+50	4+00	4+50

SHEET NO: **OP1-1**  
9 OF 15

0'  
20'  
40'  
1" = 40'  
SCALE

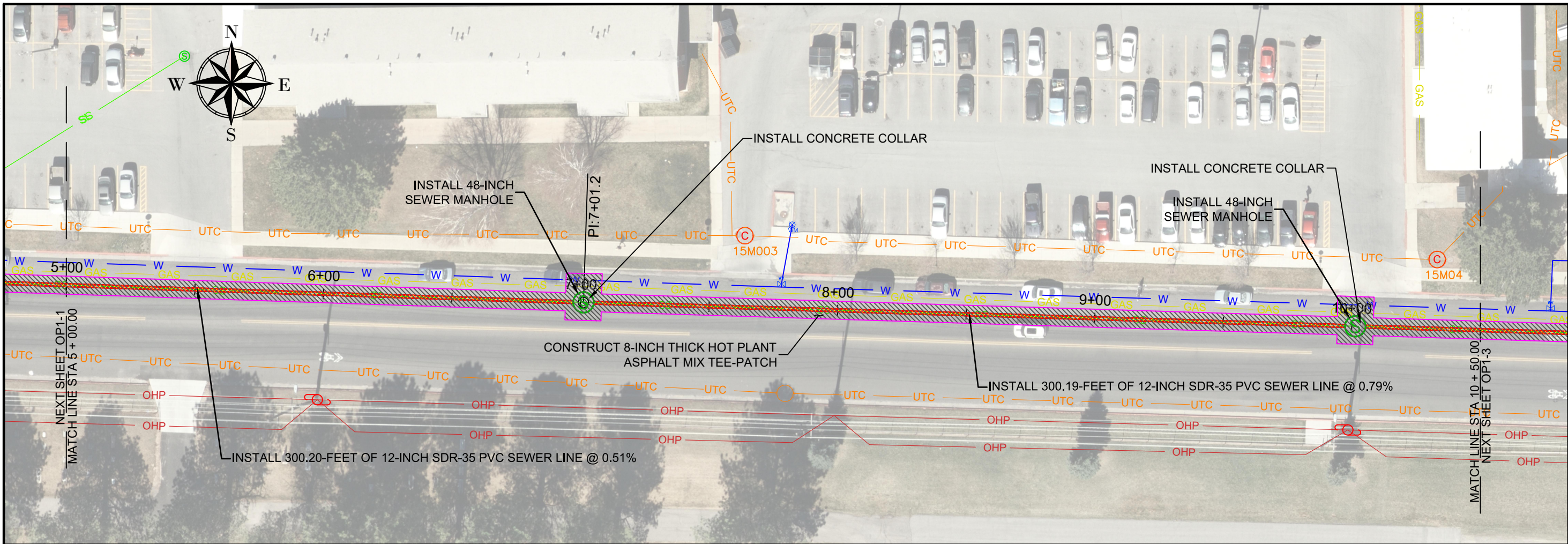
DESIGNED: THICKINSON	DATE: 10-JUL-17	REVISION BLOCK
DRAWN: GSTEPHENSON	ENG #: 17009	100%
CHECKED: LHOUSER		

1000 NORTH 990 TO 1200 EAST  
OPTION 1  
STATION 0+00.00 TO 5+00.00

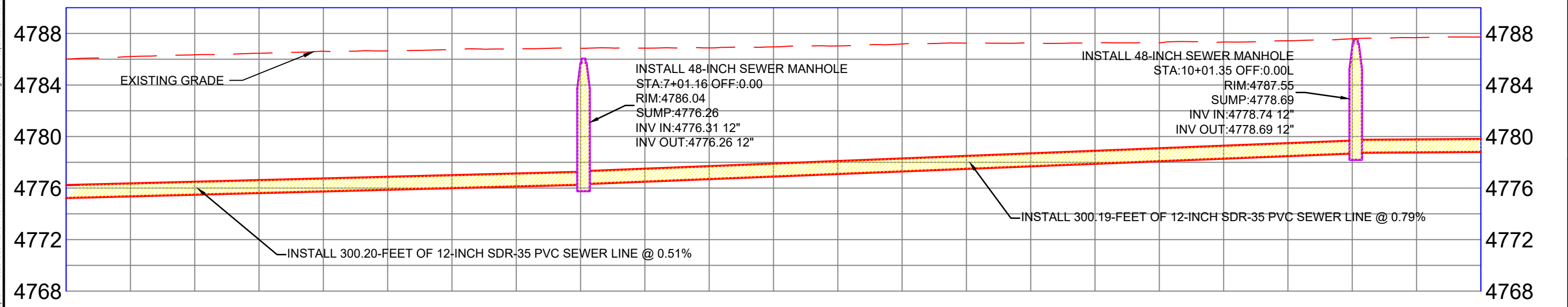
LOGAN CITY ENGINEERING  
290 NORTH 100 WEST  
LOGAN, UTAH 84321

PRINT DATE/TIME: 7/10/17 7:30 AM

PROJECT FILE LOCATION: G:\public\Engineer\00 Engineering File System\Projects\2017\ENGL17005 - 1000 NORTH 990 E TO 1200 E SEWER\Design\CAD Files\Sheet\17009-OPTION1.dwg



### SEWER CL - PROFILE



4786.34	4786.343	4786.62	4786.616	4786.73	4786.730	4786.85	4786.853	4786.88	4786.879	4787.03	4787.034	4787.25	4787.246	4787.26	4787.262	4787.33	4787.333	4787.59	4787.591
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5+50	6+00	6+50	7+00	7+50	8+00	8+50	9+00	9+50	10+00										

LOGAN CITY ENGINEERING  
290 NORTH 100 WEST  
LOGAN, UTAH 84321

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PUBLIC WORKS DEPARTMENT

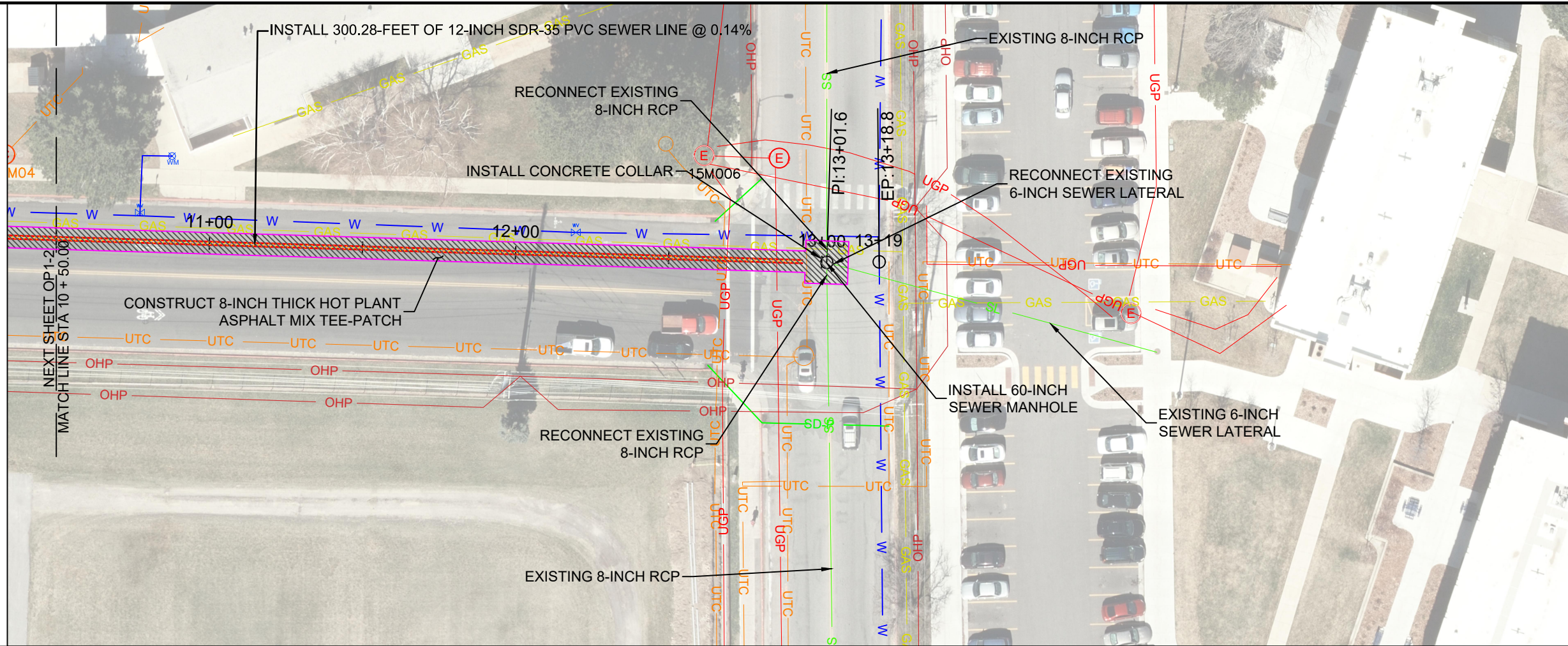
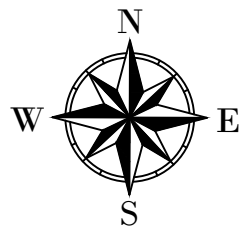
1000 NORTH 990 TO 1200 EAST  
OPTION 1  
STATION 5+00.00 TO 10+50.00

DESIGNED: THICKINSON  
DATE: 10-JUL-17  
REVISION BLOCK: 100%

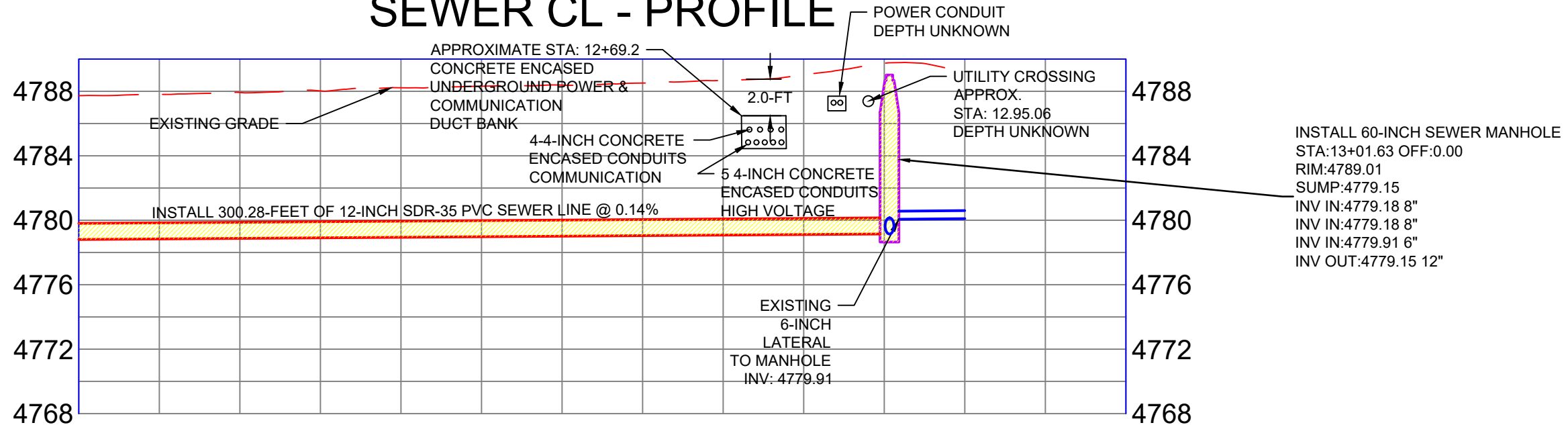
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ENG #: 17009

CHECKED: LIHOUSER

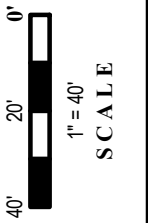
SHEET NO: OP1-2  
SCALE: 1" = 40'  
10 OF 15



## SEWER CL - PROFILE



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0.00		0.00		0.00		0.00		0.00		
11+00		11+50		12+00		12+50		13+00		13+50

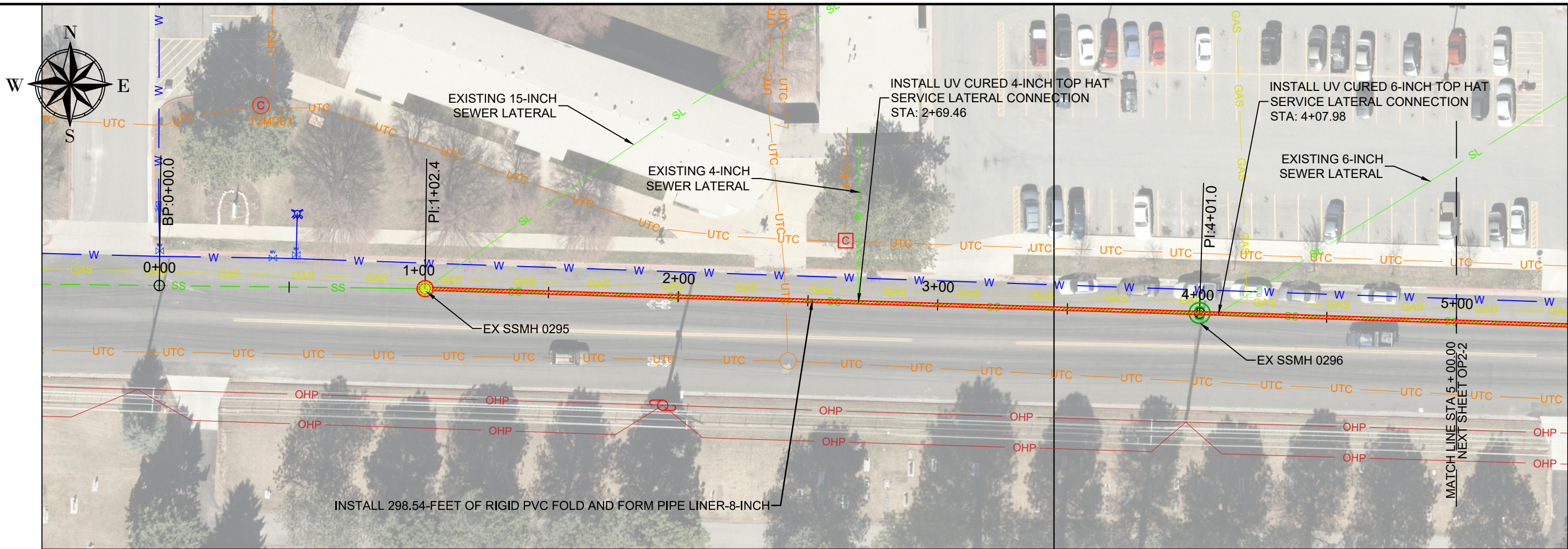


DESIGNED: THICKINSON	DATE: 10-JUL-17	REVISION BLOCK
DRAWN: GSTEPHENSON	ENG #: 17009	100%
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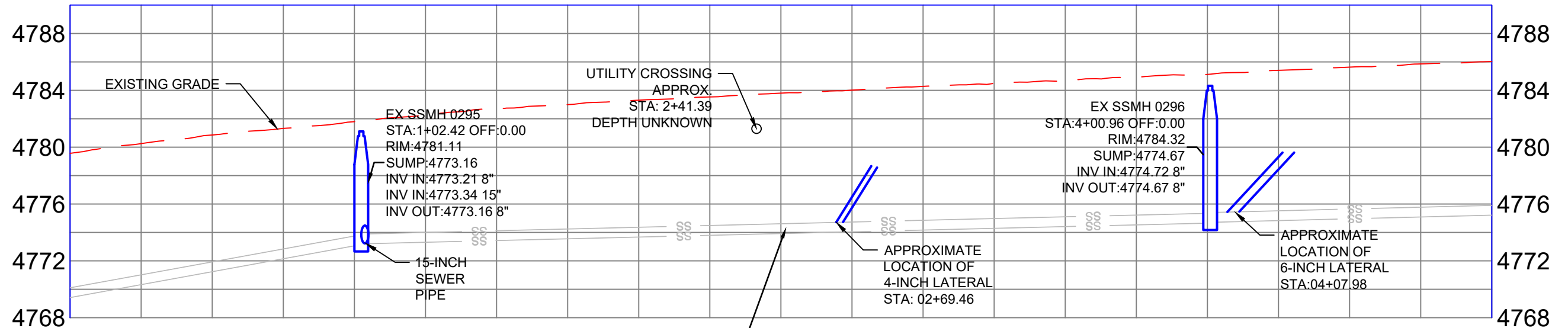
1000 NORTH 990 TO 1200 EAST  
OPTION 1  
STATION 10+50.00 TO END

LOGAN CITY ENGINEERING  
290 NORTH 100 WEST  
LOGAN, UTAH 84321





## SEWER CL - PROFILE



4780.86	4781.79	4782.72	4783.31	4783.80	4784.28	4784.68	4785.12	4785.63
4780.856	4781.794	4782.722	4783.307	4783.802	4784.279	4784.678	4785.119	4785.632
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0+50	1+00	1+50	2+00	2+50	3+00	3+50	4+00	4+50

LOGAN CITY ENGINEERING  
 290 NORTH 100 WEST  
 LOGAN, UTAH 84321

LOGAN CITY UNITED IN SERVICE  
 PUBLIC WORKS DEPARTMENT

1000 NORTH 990 TO 1200 EAST  
 OPTION 2  
 STATION 0+00.00 5+00.00

DESIGNED: THICKINSON  
 DRAFTED: GSTEPHENSON  
 CHECKED: LHOUSER

DATE: 10-JUL-17  
 ENG #: 17009

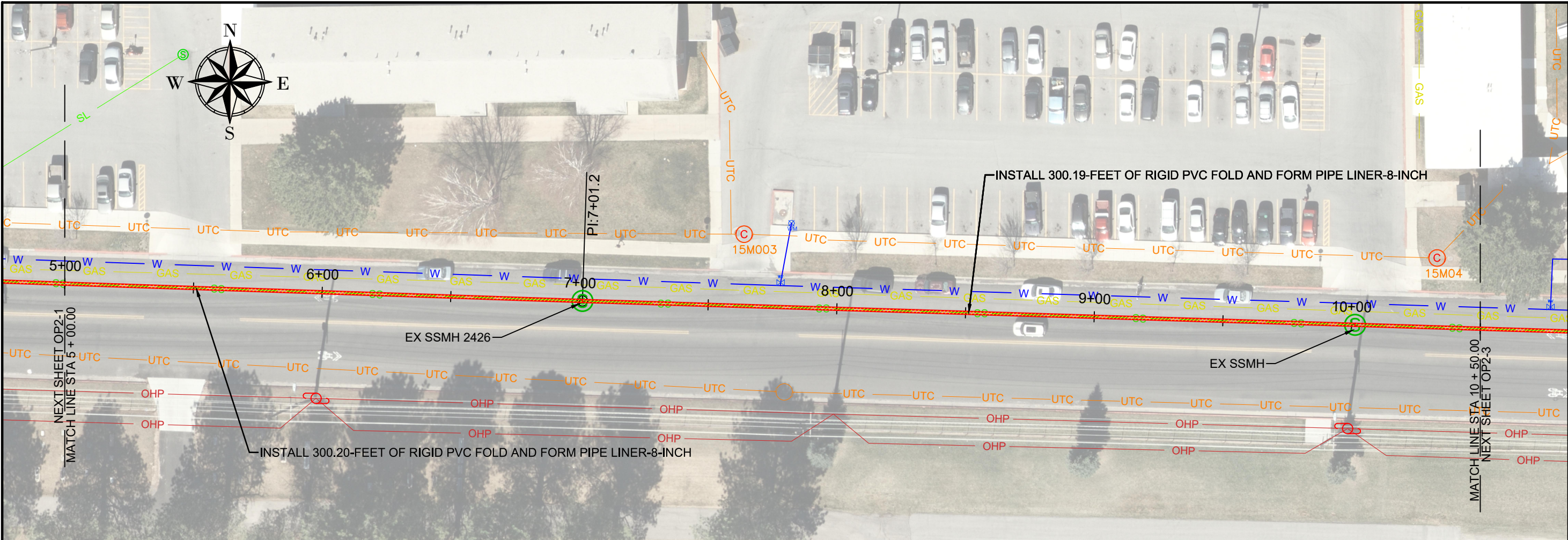
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SHEET NO: OP2-1  
 12 OF 15

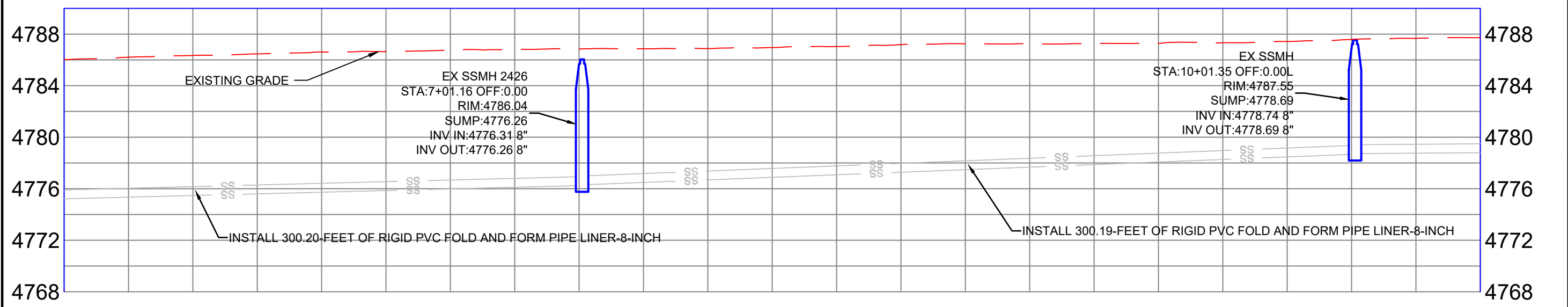
SCALE: 1" = 40'

PRINT DATE/TIME: 7/10/17 7:33 AM

PROJECT FILE LOCATION: G:\public\Engineer\00 Engineering File System\Projects\2017\ENGL17009 - 1000 NORTH 990 E TO 1200 E SEWER DESIGN (CAD Files)\SHEET(S)\17009-OP2\1202.dwg



# SEWER CL - PROFILE



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0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5+50	6+00	6+50	7+00	7+50	8+00	8+50	9+00	9+50	10+00										

LOGAN CITY ENGINEERING  
290 NORTH 100 WEST  
LOGAN, UTAH 84321

LOGAN CITY UNITED IN SERVICE  
PUBLIC WORKS DEPARTMENT

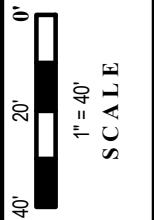
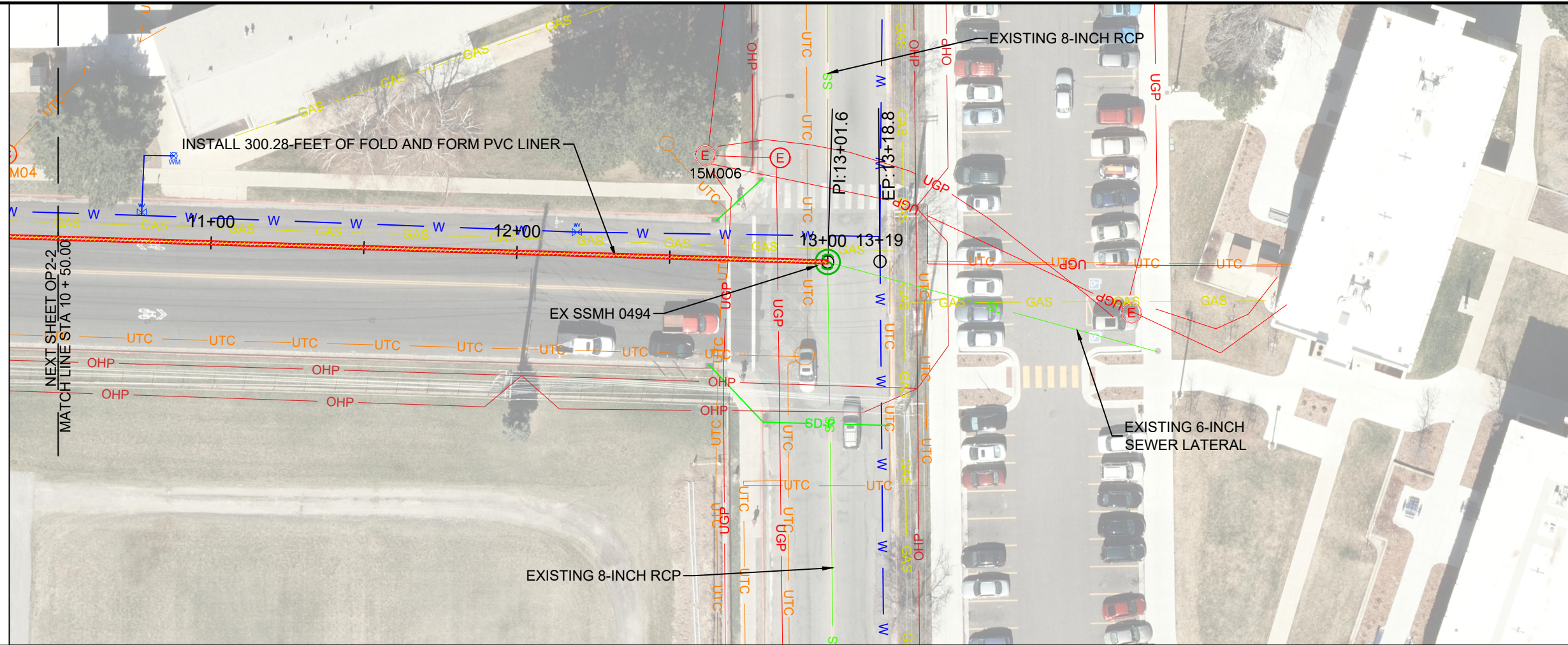
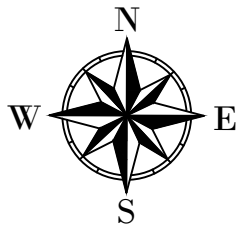
1000 NORTH 990 TO 1200 EAST  
OPTION 2  
STATION 5+00.00 TO 10+50.00

DESIGNED: THICKINSON  
DATE: 10-JUL-17  
REVISION BLOCK: 100%

DRAFTED: GSTEPHENSON  
ENG #: 17009

CHECKED: LIHOUSER

SHEET NO: OP2-2  
SCALE: 1" = 40'  
13 OF 15



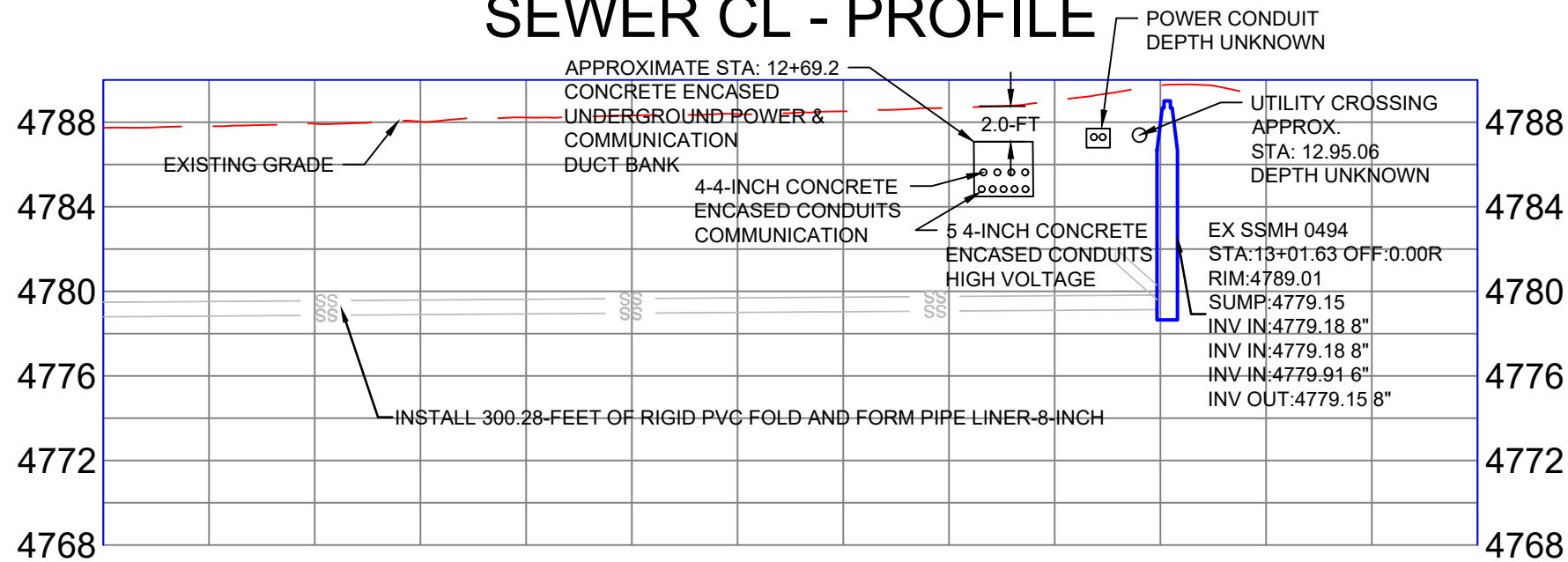
DESIGNED: THICKINSON	DATE: 10-JUN-17	REVISION BLOCK
DRAFTED: GSTEPHENSON	ENG #: 17009	100%
CHECKED: LIHOUSER		

1000 NORTH 990 TO 1200 EAST  
OPTION 2  
STATION 10+50.00 TO END

LOGAN CITY ENGINEERING  
290 NORTH 100 WEST  
LOGAN, UTAH 84321

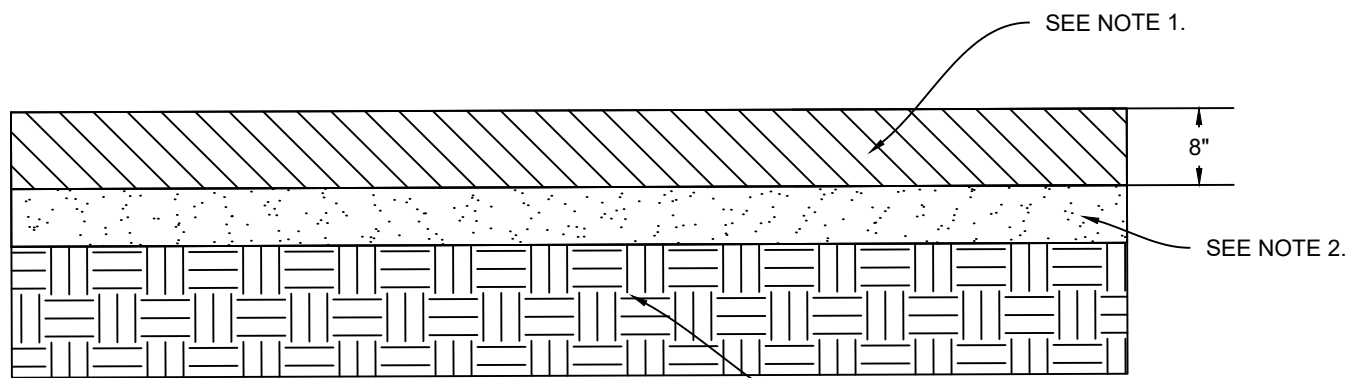


# SEWER CL - PROFILE

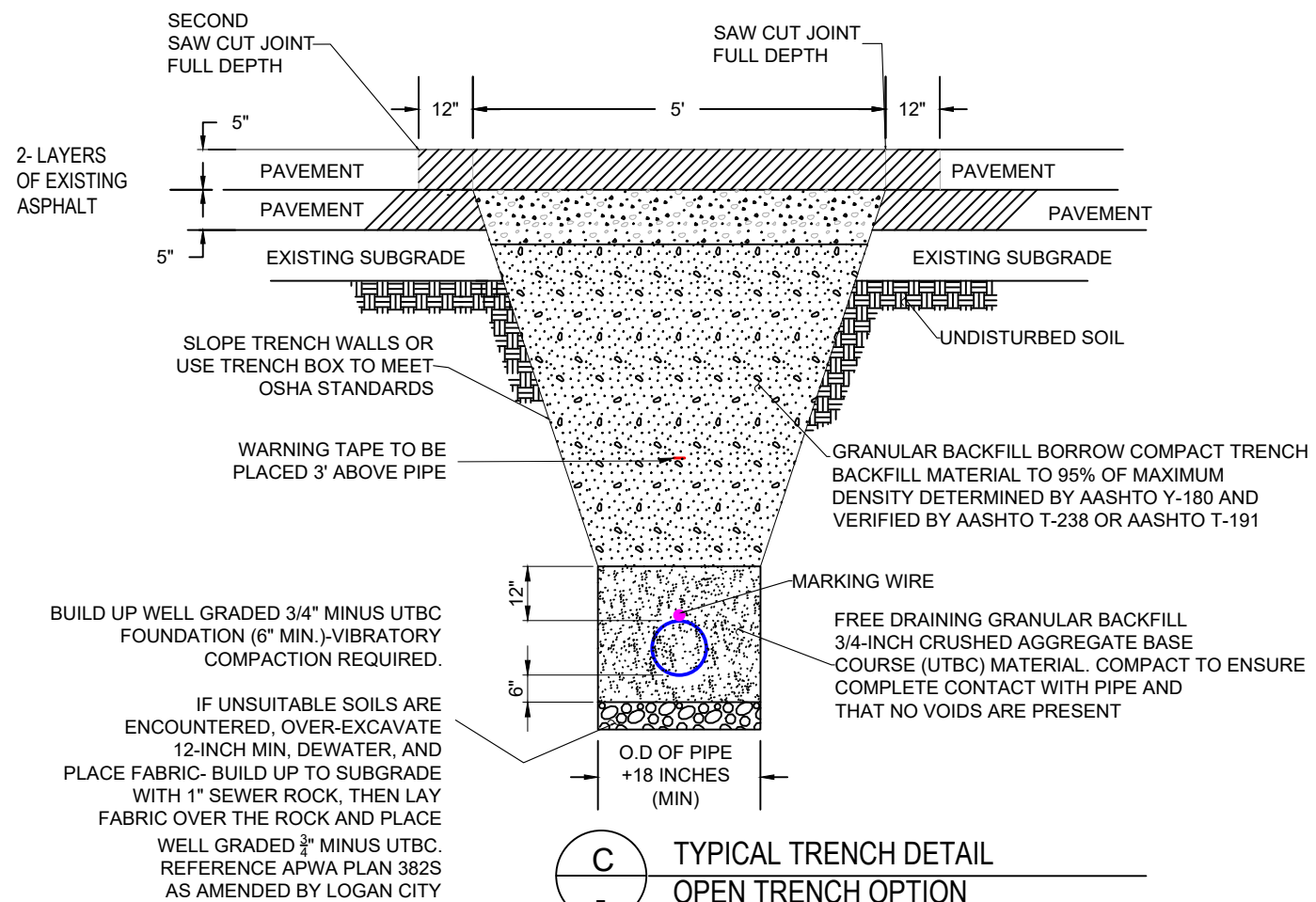


4787.93	4787.927	4788.22	4788.220	4788.39	4788.386	4788.68	4788.678	4789.74	4789.742
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11+00	11+50	12+00	12+50	13+00	13+50				

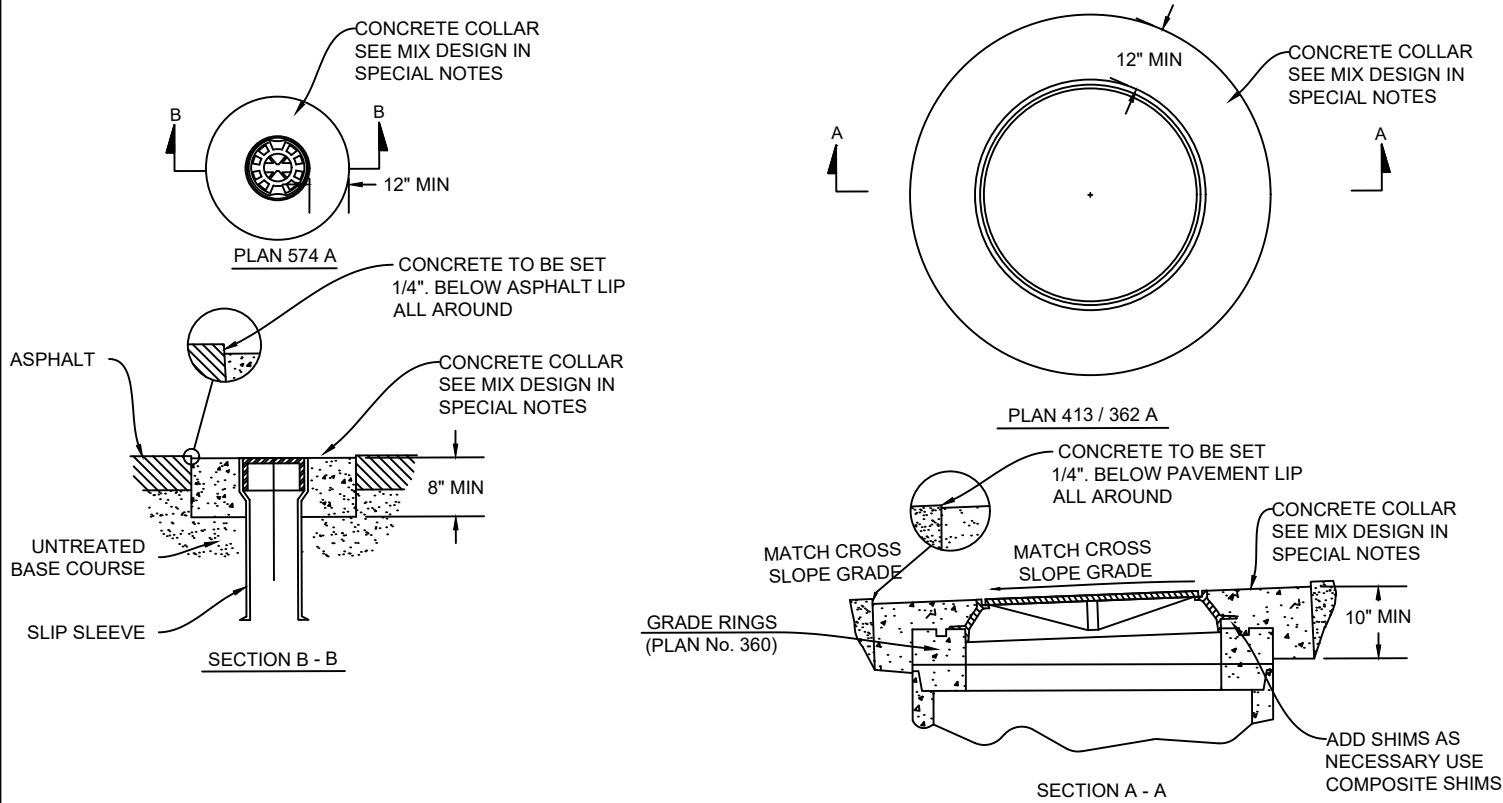
- NOTES.
1. CONSTRUCT COMPACTED HOT MIX ASPHALT 8.0" THICK IN ROADWAYS. MAINTAIN FINISHED GRADE  $\frac{1}{4}$ " TO  $\frac{1}{2}$ " ABOVE LIP OF GUTTER AND TBC.
  2. CONSTRUCT 6.0" THICK UNTREATED BASE COURSE (UTBC).
  3. EXCAVATE EXISTING ASPHALT TO SUBGRADE. SHAPE EXISTING MATERIAL, COMPACT TO FIRM AND UNYIELDING, AND PROOF ROLL PRIOR TO PLACING UTBC.



**A** HOT MIX ASPHALT SECTION  
- NTS



**C** TYPICAL TRENCH DETAIL  
- OPEN TRENCH OPTION



**B** MANHOLE AND WATERVALVE CONCRETE COLLAR  
- NTS

SHEET NO: DT1 15 OF 15  
 NTS  
 REVISION BLOCK 100%  
 DATE: Jul 10, 17  
 DESIGNED: TICKINSON  
 DRAFTED: TICKINSON  
 CHECKED: LIHOUSER  
 ENG #: 17009  
 1000 NORTH 950 E TO 1200 E  
 LOGAN CITY ENGINEERING  
 290 NORTH 100 WEST  
 LOGAN, UTAH 84321  
 LOGAN CITY UNITED IN SERVICE  
 PUBLIC WORKS DEPARTMENT

PROJECT FILE LOCATION: G:\projects\Engineering File System\Projects\2017\EGS\17008 - 1000 NORTH 950 E TO 1200 E SEWER DESIGN (CAD Files)\SHEETS\17008 DETAILS.dwg  
 PRINT DATE/TIME: 7/10/17 7:42 AM