SEWER SEPARATION IMPROVEMENTS PHASE I

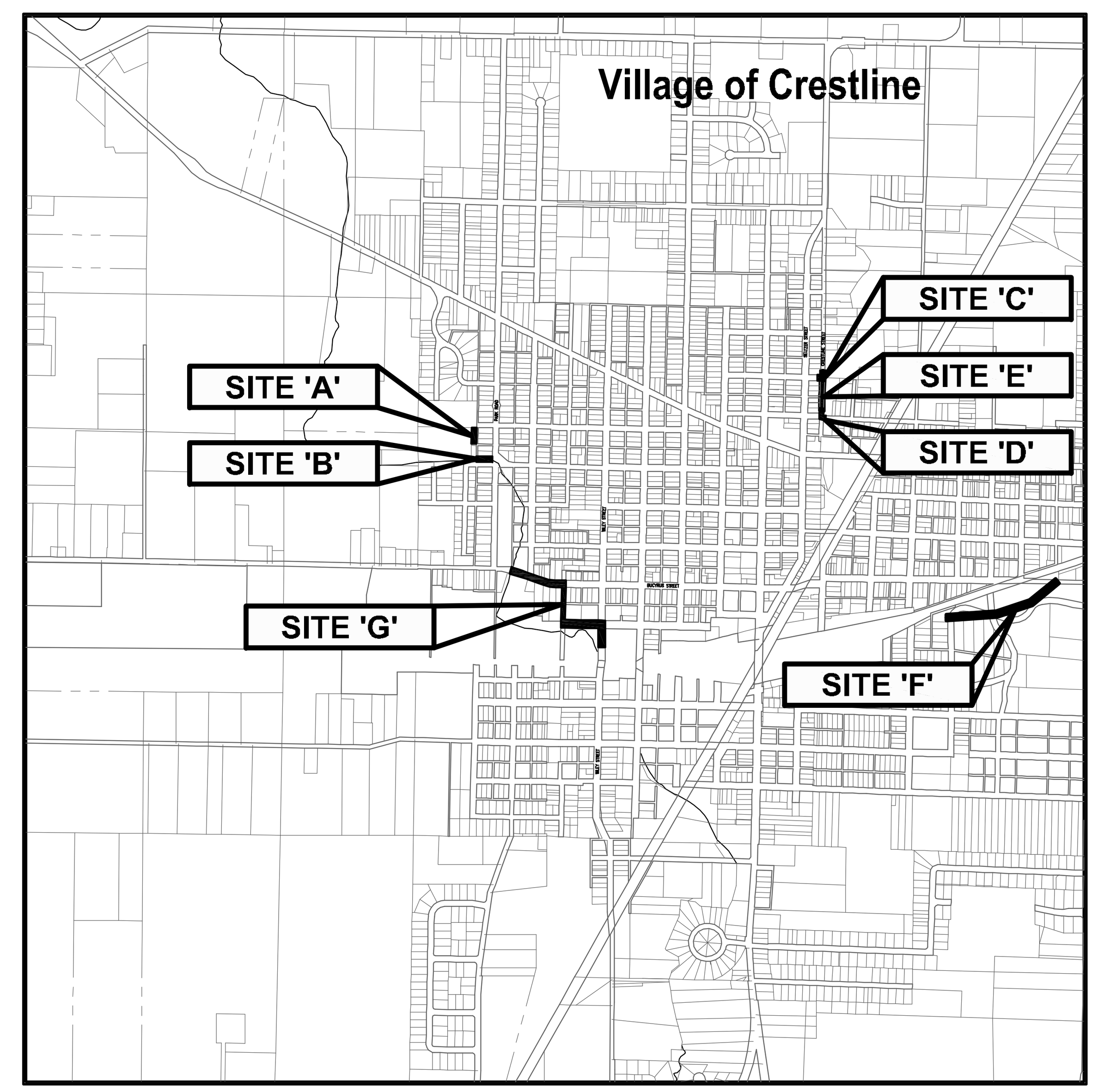
PROJECT NO. 11-014-001

VILLAGE OF CRESTLINE

CRAWFORD COUNTY, OHIO

SEPTEMBER 2011

SHEET INDEX



LOCATION MAP

VILLAGE OFFICIALS

MAYOR .... DAVID SHARROCK
VILLAGE ADMINISTRATOR .... MARC MILLIRON
TREASURER .... BARB COPE
SOLICITOR .... HARRY WELSH

MEMBERS OF COUNCIL

PRESIDENT .... DAVID CROKIE
COUNCIL WARD 1 .... ROBERT MILLER
COUNCIL WARD 2 .... CLAYTON HEROLD
COUNCIL WARD 3 .... KEN FRISBY
COUNCIL WARD 4 .... JERRY BICKERT
COUNCIL–AT–LARGE .... MIKE BLAISING
COUNCIL–AT–LARGE .... BEN HOCKER
COUNCIL–AT–LARGE .... JOHN GLEDHILL

PROJECT INDEX

SITE 'A' .... GENERATOR AT DAVIS ST. LIFT STATION
SITE 'B' .... PARK RD. SIPHON & GRAVITY SEWER
SITE 'C' .... C.S.O. IMPROVEMENTS AT CRESTLINE & WILLIAMS ST.
SITE 'D' .... NORTH ST. SIPHON IMPROVEMENTS
SITE 'E' .... 18" SEWER RELINING
SITE 'F' .... 12" SEWER RELINING
SITE 'G' .... RAILROAD SEWER REPLACEMENT

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

DATE ________

JOHN M. SABO, PE# E–69811

STATE OF OHIO
JOHN M. SABO
E–69811
REGISTERED PROFESSIONAL ENGINEER

CALCULATED	CHECKED
X	X

REV. NO.	DESCRIPTION	DATE

GGJ inc. consulting engineers
35585 Curtis Blvd., Unit C
Eastlake, Ohio 44095
Ph: 440.953.1567
Fx: 440.953.0580
Email: ggj@ggjengineers.com
www.ggjengineers.com

SEWER SEPARATION IMPROVEMENTS PHASE I

VILLAGE OF CRESTLINE

GENERAL

CONSTRUCTION OF THIS PROJECT SHALL BE IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS AND CONSTRUCTION DRAWINGS, LATEST O.D.O.T. STANDARD SPECIFICATIONS INCLUDING ALL CURRENT SUPPLEMENTAL SPECIFICATIONS AND STANDARD DRAWINGS.

THE STANDARD SPECIFICATIONS OF THE OHIO DEPARTMENT OF TRANSPORTATION, LATEST EDITION, INCLUDING ALL SUPPLEMENTAL SPECIFICATIONS AND STANDARD DRAWINGS, SHALL GOVERN THIS PROJECT. FOR THE PURPOSE OF THIS PLAN, REFERENCES TO DIRECTOR OR ENGINEER SHALL BE CONSTRUED TO MEAN THE DESIGN ENGINEER AND/OR HIS REPRESENTATIVE.

THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS ON ALL DRAWINGS PRIOR TO PROCEEDING WITH CONSTRUCTION. (FIGURED DIMENSIONS ONLY SHALL BE USED). ANY DISCREPANCY BETWEEN ACTUAL AND GRAPHIC CONDITIONS SHALL BE REPORTED TO THE ENGINEER PRIOR TO PROCEEDING WITH ANY CONSTRUCTION.

ALL WORK CONTEMPLATED SHALL BE GOVERNED BY THE RULES, REGULATIONS AND SPECIFICATIONS OF THE VILLAGE, AND AT ALL TIMES SHALL BE SUBJECT TO THEIR DIRECT SUPERVISION AND INSPECTION.

THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS BEFORE INSTALLING ANY PROPOSED PIPE, OR MANHOLES. ANY ADJUSTMENTS SHALL BE APPROVED BY THE ENGINEER.

ANY EXISTING PROPERTY, STRUCTURES OR UTILITY LINES DAMAGED IN OR OUTSIDE OF THE CONSTRUCTION LIMITS DURING THE CONSTRUCTION OF THIS PROJECT SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.

ANY EXISTING SIGNS, MAILBOXES, PAPER BOXES, LANDSCAPE ITEMS OR FENCES DAMAGED DURING CONSTRUCTION OF THIS PROJECT, SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.

THE CONTRACTOR SHALL PRESERVE ALL CORNERSTONES, IRON PINS, CONCRETE MONUMENTS, OR ANY OTHER TYPE OF LAND MONUMENT. THE CONTRACTOR SHALL HAVE ALL LAND MONUMENTS IN THE PROXIMITY OF THE WORK REFERENCED. THE CONTRACTOR SHALL REPLACE DESTROYED OR DAMAGED MONUMENTS AND SHALL FURNISH A CERTIFICATION BY A REGISTERED SURVEYOR THAT THE MONUMENTS HAVE BEEN RESTORED.

ALL WORK PERFORMED UNDER THIS CONTRACT SHALL COMPLY WITH THE U.S. DEPARTMENT OF LABOR OCCUPATIONAL SAFETY AND HEALTH ACT.

THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO SUBMITTING A BID TO PERSONALLY ASCERTAIN THE CONDITIONS OF THE WORK.

UPON COMPLETION OF CONSTRUCTION, THE WORK AREA SHALL BE RETURNED AS NEAR AS POSSIBLE TO ITS ORIGINAL CONDITION.

THE CONTRACTOR SHALL WORK WITHIN DESIGNATED STREET RIGHT-OF-WAYS WHILE CONSTRUCTING THIS PROJECT UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

IMMEDIATELY UPON COMPLETION OF THE WORK, ALL TRAFFIC CONTROL DEVICES SHALL BE REMOVED BY THE CONTRACTOR AND UNLESS OTHERWISE SPECIFIED WILL REMAIN THE CONTRACTOR'S PROPERTY.

THE VILLAGE RESERVES THE RIGHT TO KEEP IN THEIR POSSESSION ANY ITEM BEING DEMOLISHED OR REMOVED AS PART OF THIS CONTRACT. THE CONTRACTOR IS RESPONSIBLE FOR DISPOSAL OF ALL MATERIALS THAT ARE REMOVED OR DEMOLISHED AS PART OF THIS CONTRACT.

THE VILLAGE OF CRESTLINE WILL PAY FOR INSPECTION OF THE PROPOSED WORK.

A PRE-CONSTRUCTION CONFERENCE SCHEDULED BY THE ENGINEER SHALL BE HELD PRIOR TO ANY WORK STARTING. IN ADDITION, THE CONTRACTOR SHALL PROVIDE 48 HOUR NOTICE PRIOR TO BEGINNING WORK TO ARRANGE FOR INSPECTION.

PRIOR TO SUBSURFACE INVESTIGATION OR ON-SITE EXAMINATION OF THE PROJECT, ALL BIDDERS OBTAIN APPROVAL FROM THE VILLAGE AND/OR THE PROPERTY OWNERS.

SUBSURFACE CONDITIONS

IT IS THE OBLIGATION AND RESPONSIBILITY OF THE BIDDER TO MAKE HIS OWN INVESTIGATIONS OF SUBSURFACE CONDITIONS PRIOR TO SUBMITTING HIS PROPOSAL. THE BIDDER MAY EXAMINE THE RECORDS OF ALL BORINGS, TEST EXCAVATIONS AND OTHER SUBSURFACE INVESTIGATIONS, IF ANY, MADE SOLELY FOR DESIGN PURPOSES FOR THE OWNER. SAID BORINGS, TEST EXCAVATIONS AND OTHER SUBSURFACE INVESTIGATIONS ARE NOT WARRANTED TO SHOW THE ACTUAL SUBSURFACE CONDITIONS. THE CONTRACTOR AGREES THAT HE WILL MAKE NO CLAIM AGAINST THE OWNER OR ENGINEER IF, IN CARRYING OUT THE WORK, HE FINDS THAT THE ACTUAL SUBSURFACE CONDITIONS ENCOUNTERED DO NOT CONFORM TO THOSE INDICATED BY SAID BORINGS, OR SHOWN ON THE PLAN, TEST EXCAVATIONS, AND OTHER SUBSURFACE INVESTIGATIONS.

BENCHMARKS

BENCHMARKS WHICH ARE GIVEN HEREON ARE BASED AS NOTED ON PLANS AND ARE THE BASIS OF THE PROPOSED CONSTRUCTION ELEVATIONS.

ACCESSIBILITY TO PRIVATE PROPERTY

ACCESS TO ALL DRIVEWAYS AND PARKING AREAS WITHIN THE PROJECT WORK LIMITS SHALL BE MAINTAINED AT ALL TIMES. ACCESS TO ALL ADJOINING PROPERTIES SHALL BE MAINTAINED AT ALL TIMES.

THE CONTRACTOR SHALL NOTIFY ALL EMERGENCY AND PUBLIC SERVICES (FIRE DEPT., POLICE DEPT., SHERIFF DEPT., AMBULATORY, SCHOOLS AND THE POST OFFICE) ONE WEEK PRIOR TO ANY ROAD CLOSING OR DETOURS IN CONSIDERATION WITH THE CONSTRUCTION OF THIS CONTRACT. NOTIFICATION SHALL BE BY CERTIFIED LETTER WITH A COPY AND RETURN RECEIPT SUBMITTED TO THE ENGINEER.

SOIL EROSION

THE CONTRACTOR SHALL IMPLEMENT SOIL EROSION AND SEDIMENTATION CONTROL MEASURES AT HIS OWN EXPENSE IN ACCORDANCE WITH THE SOIL EROSION AND SEDIMENTATION REGULATIONS OF THE OHIO DEPARTMENT OF ENVIRONMENTAL AND NATURAL RESOURCES, AND AS STATED IN THE PROJECT SPECIFICATION.

RIGHTS-OF-WAY

IN ADDITION TO DIRECT REQUIREMENTS OF THE CONTRACT SPECIFICATIONS, THE CONTRACTOR SHALL OBSERVE AND CONFORM TO THE SPECIFIC REQUIREMENTS OF ALL RIGHT-OF-WAY, INCLUDING, BUT NOT LIMITED TO, EASEMENTS, COURT ENTRIES, RIGHT-OF-ENTRY, OR ACTION FILED IN COURT, IN ACCORDANCE WITH THE CODE OF THE APPLICABLE GOVERNING AGENCY. THE COST OF THE OPERATIONS NECESSARY TO FULFILL SUCH REQUIREMENTS SHALL BE INCLUDED IN THE PRICE BID FOR THE VARIOUS ITEMS OF THE CONTRACT.

MAIL SERVICE

THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING MAIL SERVICE IN THE CONSTRUCTION AREA. PRIOR TO DISTURBING ANY MAIL BOXES, THE CONTRACTOR SHALL CONTACT THE POSTAL AUTHORITIES AND SHALL TEMPORARILY RELOCATE MAIL BOXES IN ACCORDANCE WITH THE REQUIREMENTS THEREOF THE CONTRACTOR SHALL RESTORE MAIL BOXES TO THEIR ORIGINAL CONDITION AND LOCATION.

PROTECTION OF TREES & SHRUBS

IT IS THE CONTRACTOR'S RESPONSIBILITY TO EXERCISE SPECIAL CARE TO TREES, SHRUBS AND THEIR ROOT SYSTEM. MACHINE EXCAVATION SHALL NOT BE USED WHEN, IN THE OPINION OF THE ENGINEER, IT WOULD ENDANGER TREE ROOTS. IN GENERAL, WHERE THE LINE OF TRENCH FALLS WITHIN THE LIMITS OF THE LIMB SPREAD, THE LEAVING OF HEADERS ACROSS THE PROTECT ROOTS WILL BE REQUIRED. THE OPERATION OF ALL EQUIPMENT, PARTICULARLY WHEN EMPLOYING BOOMS, THE STORAGE OF MATERIALS, AND THE DEPOSITION OF EXCAVATION, SHALL BE CONDUCTED IN A MANNER WHICH WILL NOT INJURE TREES, SHRUBS, TRUNKS, BRANCHES, OR THEIR TREE ROOTS UNLESS SUCH TREES & SHRUBS ARE DESIGNATED BY THE ENGINEER FOR REMOVAL.

UTILITY CROSSINGS

AT ALL UTILITY CROSSINGS, THE BACKFILL SHALL CONSIST OF COMPACTED GRANULAR MATERIAL BETWEEN THE DEEPER AND SHALLOWER PIPE. WHERE PROPOSED UTILITIES OR SERVICES CROSS PROPOSED OR EXISTING PAVEMENT AREAS, BACKFILL SHALL BE COMPACTED GRANULAR MATERIAL IN ACCORDANCE WITH THE SPECIFICATIONS.

DRIVEWAY CULVERTS & PIPING

ALL CULVERTS AND ASSOCIATED STORM PIPING THAT IS DISTURBED DURING CONSTRUCTION SHALL BE REMOVED. ALL CONNECTIONS TO THE EXISTING STORM SYSTEM SHALL BE RECONNECTED TO THE NEW STORM SEWER.

PAVEMENT & APRON REPLACEMENT

PARKING AREAS AND DRIVEWAYS SHALL BE REPLACED IN ACCORDANCE WITH THE SPECIFICATIONS. PAYMENT WILL BE MADE UNDER THE APPROPRIATE PAVEMENT REPLACEMENT ITEMS.

CATCH BASINS & INLETS, REMOVED OR ABANDONED

THE CASTINGS SHALL BE CAREFULLY REMOVED AND STORED WITHIN THE RIGHTS-OF-WAY FOR SALVAGE BY VILLAGE FORCES FOR ALL MANHOLES CATCH BASINS AND INLETS REMOVED OR ABANDONED.

CONSTRUCTION NOISE

IN ORDER TO MINIMIZE ADVERSE CONSTRUCTION NOISE IMPACTS, NO POWER-OPERATED CONSTRUCTION TYPE DEVICE SHALL BE OPERATED BETWEEN THE HOURS OF 10:00 P.M. TO 6:00 A.M. IN ADDITION, NO POWER-OPERATED CONSTRUCTION TYPE DEVICE SHALL BE OPERATED IN SUCH A MANNER THAT THE NOISE CREATED SUBSTANTIALLY EXCEEDS THE NOISE CUSTOMARILY AND NECESSARILY ATTENDANT TO THE REASONABLE AND EFFICIENT PERFORMANCE OF SUCH EQUIPMENT.

DUST CONTROL

THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTROLLING DUST, DIRT AND MUD DUE TO CONSTRUCTION IN THE PROJECT AREA DURING THE LIFE OF THE PROJECT. DUST CONTROL OPERATIONS SHALL BE PERFORMED BY THE CONTRACTOR IN ACCORDANCE WITH ITEM 616 OF THE OHIO DEPARTMENT OF TRANSPORTATION (O.D.O.T.), CONSTRUCTION AND MATERIALS SPECIFICATIONS. PAYMENT FOR DUST CONTROL SHALL BE INCLUDED IN THE UNIT BID PRICE FOR THE VARIOUS SIZES OF SEWER LINE.

PROPERTY PINS

ALL PROPERTY PINS OR MONUMENTS WHICH ARE REMOVED OR DISTURBED DURING CONSTRUCTION SHALL BE REPLACED IN THE SAME LOCATION THEY OCCUPIED PRIOR TO CONSTRUCTION. THE COST OF REPLACING PROPERTY PINS SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR CONSTRUCTION STAKING. THIS WORK SHALL BE COMPLETED BY A PROFESSIONAL SURVEYOR REGISTERED IN THE STATE OF OHIO.

DEWATERING

IF IT IS NECESSARY FOR ANY EXCAVATION TO BE DEWATERED, IT WILL BE THE CONTRACTOR'S RESPONSIBILITY TO DEWATER SAID EXCAVATION AT NO ADDITIONAL COST TO THE VILLAGE. THE METHOD OF DEWATERING SHALL BE APPROVED BY THE ENGINEER PRIOR TO DEWATERING. ALSO ANY REQUIRED TEMPORARY PLUMBING OF SEWAGE FLOW REQUIRED TO CONSTRUCT THIS PROJECT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AT NO ADDITIONAL COST TO THE VILLAGE. SEWER FLOW SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION. UNDER NO CIRCUMSTANCES SHALL SANITARY SEWER FLOWS BE DISCHARGED ONTO THE GROUND OR STREET SURFACE, OR INTO ANY CATCH BASIN.

CONSTRUCTION STAKING

THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL CONSTRUCTION STAKES REQUIRED.

MATERIAL SPECIFICATIONS

MATERIAL SPECIFICATIONS CALLED FOR ON THE PLANS REPRESENT THE MINIMUM REQUIRED FOR EACH APPLICATION. THE OWNER MAY REQUEST OR THE CONTRACTOR MAY DESIRE TO SUBSTITUTE ALTERNATE MATERIALS. ANY SUCH SUBSTITUTIONS MUST BE EQUIVALENT IN QUALITY TO THE MATERIAL CALLED FOR AND MUST BE APPROVED IN WRITING BY THE APPROVING AGENCIES AND THE CONSULTING ENGINEER.

CONTRACTOR SHALL INCLUDE COST OF GRANULAR BACKFILL UNDER ALL EXISTING AND PROPOSED PAVEMENTS IN PRICE BID PER LINEAR FOOT OF PIPE.

MATERIAL TESTING AND PERMITS

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COST OF ALL MATERIAL TESTING AND ALL PERMITS REQUIRED FOR THIS PROJECT.

UTILITIES

THE LOCATION OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREE TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE INCURRED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

THE CONTRACTOR SHALL EXPOSE ALL UTILITIES OR STRUCTURES PRIOR TO CONSTRUCTION TO VERIFY THE VERTICAL AND HORIZONTAL LOCATION OF THE UTILITY OR STRUCTURE AND ITS EFFECT ON THE PROPOSED CONSTRUCTION. THE CONTRACTOR SHALL COORDINATE HIS WORK WITH THE UTILITY COMPANIES.

GAS LINES, WATER LINES, ELECTRIC, TELEPHONE, AND CABLE LINES MAY NEED TO BE LOWERED DUE TO THE STORM SEWER WORK ON THIS PROJECT. THE CONTRACTOR IS RESPONSIBLE FOR SCHEDULING THESE POTENTIAL UTILITY RELOCATIONS BEFORE WORK BEGINS. ALL COSTS AND DELAYS ASSOCIATED WITH THIS WORK ARE THE RESPONSIBILITY OF THE CONTRACTOR.

THE CONTRACTOR SHALL NOTIFY AT LEAST TWO WORKING DAYS BEFORE BREAKING GROUND ALL PUBLIC SERVICE CORPORATION, REGISTERED UNDERGROUND UTILITY PROTECTION SERVICE MEMBERS AND/OR NON-MEMBER OWNERS HAVING WIRE, POLES, PIPES, CONDUITS, OR OTHER STRUCTURES THAT MAY BE AFFECTED BY THIS OPERATION.

THE CONTRACTOR SHALL CALL OHIO UTILITIES PROTECTION SERVICE 1-800-362-2764 BEFORE DIGGING.

UTILITIES WITHIN THE LIMITS OF THIS PROJECT

COLUMBIA GAS OF OHIO 1120 WEST 4TH STREET MANSFIELD, OHIO 44906 DAN PETERSON (419) 528-1119	OHIO EDISON 1717 ASHLAND ROAD MANSFIELD, OHIO 44905 DAN DEVILLE (419) 521-6219	VILLAGE OF CRESTLINE SERVICE DEPT. 100 NORTH SELTZER STREET CRESTLINE, OHIO 44827 STEVE HEIBY (419) 683-3800
FRONTIER COMMUNICATIONS	TIME WARNER CABLE	MCI
QWEST COMMUNICATIONS		

OPEN TRENCHES

THE CONTRACTOR SHALL MAINTAIN TYPE 11 BARRICADES OR STANDARD TRAFFIC BARRELS AT 50-FOOT INTERVALS ALONG UNPROTECTED TRENCHES. ALL AREAS SHALL BE RETURNED TO NORMAL TRAFFIC CONDITIONS AT THE END OF EACH WORK DAY. FENCES MAY BE REQUIRED AT THE DISCRETION OF THE ENGINEER TO PROTECT PEDESTRIAN TRAFFIC.

SANITARY SEWERS

CLEAN WATER CONNECTIONS TO THE SANITARY SEWER WILL NOT BE PERMITTED.

WHERE THE SANITARY SEWER IS INSTALLED WITHIN A 10 FOOT HORIZONTAL SEPARATION OF A WATER MAIN, THE SANITARY SEWER SHALL BE CONSTRUCTED OF AWWA C900 PIPE

STORM SEWERS

ALL FIELD TILE ENCOUNTERED SHALL BE TIED INTO STORM SEWER. ANY FIELD TILE INTERCEPTED BY OTHER EXCAVATIONS SHALL BE RECONNECTED.

CONNECTIONS TO EXISTING PIPE

WHERE THE PLANS PROVIDE FOR PROPOSED CONDUIT TO BE CONNECTED TO OR TO CROSS EITHER OVER OR UNDER AN EXISTING PIPE, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE THE EXISTING PIPE BOTH AS TO LINE AND GRADE BEFORE HE STARTS TO LAY THE PROPOSED CONDUIT.

ALL OPEN END EXISTING STORM AND SANITARY SEWER PIPE ABANDONED IN PLACE SHALL BE PLUGGED. THE COST OF SUCH PIPE PLUGGING SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE VARIOUS ITEMS UNDER THIS CONTRACT AND NO SEPARATE PAYMENT WILL BE MADE.

LOCATION OF SEWER LATERALS, DOWNSPOUT LINES AND WATER SERVICE LINES ARE APPROXIMATE. IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE EXACT LOCATION AND NUMBER IN THE FIELD AND ASSURE THAT ALL UTILITY LINES ARE RECONNECTED. THE COST OF LOCATING LINES SHALL BE INCLUDED WITH THE UNIT PRICE BID FOR THE VARIOUS TYPES AND SIZES OF PIPE.

HOUSE CONNECTIONS

EXISTING ROOF DRAINS, FOOTER DRAINS OR YARD DRAINS, DISTURBED BY THE PROPOSED WORK SHALL BE PROVIDED WITH UNOBSTRUCTED OUTLETS BY CONNECTING TO A STORM SEWER, DRAINAGE DITCH, MANHOLE OR CATCH BASIN.

ROOF DRAINS, FOUNDATION DRAINS AND OTHER CLEAN WATER CONNECTIONS TO THE SANITARY SEWER SYSTEM ARE PROHIBITED.

THE LOCATION, TYPE, SIZE AND GRADE OF REQUIRED REPLACEMENTS WILL BE DETERMINED BY THE ENGINEER DURING CONSTRUCTION. ALL KNOWN DRAINS ARE SHOWN ON THE PLAN SHEETS.

REVIEW OF DRAINAGE FACILITIES

BEFORE ANY WORK IS STARTED ON THE PROJECT, AND AGAIN BEFORE FINAL ACCEPTANCE BY THE VILLAGE, REPRESENTATIVES OF THE VILLAGE AND THE CONTRACTOR SHALL MAKE AN INSPECTION OF THE EXISTING CONDUITS AND THEIR APPURTENANCES SHALL BE DETERMINED FROM FIELD OBSERVATIONS. RECORDS OF THE INSPECTIONS SHALL BE KEPT IN WRITING BY THE VILLAGE.

ALL NEW CONDUITS, INLETS, CATCH BASINS AND MANHOLES CONSTRUCTED AS A PART OF THE PROJECT SHALL BE FREE OF ALL FOREIGN MATTER AND IN A CLEAN CONDITION BEFORE THE PROJECT WILL BE ACCEPTED BY THE VILLAGE.

ALL EXISTING SEWERS INSPECTED INITIALLY BY THE ABOVE-MENTIONED PARTIES SHALL BE MAINTAINED AND LEFT IN A CONDITION REASONABLY COMPARABLE TO THAT DETERMINED BY THE ORIGINAL INSPECTION. ANY CHANGE IN THE CONDITION RESULTING FROM THE CONTRACTOR'S OPERATIONS SHALL BE CORRECTED BY THE CONTRACTOR TO THE SATISFACTION OF THE ENGINEER.

PAVEMENT NOTES

ALL PAVEMENT DETAILS, MATERIALS, AND WORKMANSHIP SHALL CONFORM TO THE LATEST STATE OF OHIO DEPARTMENT OF TRANSPORTATION "CONSTRUCTION AND MATERIALS SPECIFICATIONS", OR AS MODIFIED BY THE CONTRACT DRAWINGS OR THE SPECIFICATIONS. IN THE EVENT OF A DISCREPANCY, THE CONTRACT DRAWINGS SHALL SUPERSEDE THE O.D.O.T. SPECIFICATIONS.

TRAFFIC SHALL NOT BE EXPOSED TO LONGITUDINAL VERTICAL FACES DURING NON- WORKING HOURS.

TRANSVERSE VERTICAL FACES SHALL BE TEMPORARILY RAMPED A MINIMUM OF 10 FOOT IN LENGTH.

ALL CASTINGS SHALL BE ADJUSTED TO GRADE PRIOR TO THE PLACEMENT OF THE PAVEMENT.

ALL WATER METER MANHOLES AND VALVES SHALL BE ADJUSTED TO GRADE BY THE USE OF ADJUSTING RINGS.

MAINTAINING TRAFFIC

THE CONTRACTOR SHALL FURNISH AND MAINTAIN ALL NECESSARY SAFEGUARDS SUCH AS BARRICADES, SATISFACTORY BARRIERS, LIGHTING, FLAG MEN, TEMPORARY GUARDRAIL, AND SUCH OTHER TRAFFIC CONTROL DEVICES AS PROVIDED IN OHIO DEPARTMENT OF TRANSPORTATION SPECIFICATIONS SO AS TO AVOID DAMAGE AND/OR INJURY TO VEHICLES AND PERSONS USING THE ROADWAY DURING CONSTRUCTION.

PAYMENT FOR LABOR AND EQUIPMENT REQUIRED FOR THE CONSTRICTION, MAINTENANCE AND SUBSEQUENT REMOVAL OF APPROACHES, CROSSOVERS, DRIVEWAYS, BARRICADES, LIGHTS, SIGNS, AND SIGN SUPPORTS, SHALL BE INCLUDED IN THE PRICE BID PER SQUARE YARD OF PAVEMENT PLANING.

ALL TRAFFIC CONTROL DEVICES SHALL BE FURNISHED, ERECTED, MAINTAINED, AND REMOVED BY THE CONTRACTOR IN ACCORDANCE WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. A MINIMUM OF ALTERNATING ONE WAY TRAFFIC SHALL BE MAINTAINED AT ALL TIMES. THE CONTRACTOR SHALL UTILIZE FLAGGERS DURING LANE CLOSURES. TRAFFIC SHALL BE MAINTAINED, AS SHOWN IN O.D.O.T. STANDARD CONSTRUCTION DRAWINGS.

ALL VILLAGE STREETS SHALL HAVE A MINIMUM OF ONE 11' LANE MAINTAINED AT ALL TIMES. DRIVEWAYS SHALL BE MAINTAINED AT ALL TIMES TO ALLOW ACCESS BY LOCAL TRAFFIC.

SAWED JOINTS

IN REMOVING FLEXIBLE OR RIGID PAVEMENT, DRIVES, SIDEWALK AND PARKING LOTS, ETC., A NEAT JOINT WITH A MINIMUM DEPTH OF FOUR (4) INCHES SHALL BE CUT WITH AN APPROVED POWER SAW. THE COST OF THIS OPERATION SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE PERTINENT ITEM.

CONCRETE

LIMESTONE AGGREGATE SHALL BE USED IN THE PORTLAND CEMENT CONCRETE FOR PAVEMENT, CURBS AND SIDEWALKS.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONSTRUCTION SIGNING AND TRAFFIC CONTROL AS DIRECTED BY THE PLANS AND THE ENGINEER. ALL WORK, SIGN LAYOUTS, AND MATERIALS USED SHALL CONFORM TO THE SPECIFICATIONS SET FORTH IN THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR TRAFFIC MAINTENANCE AND SAFETY CONTROL DEVICES DURING ALL CONSTRUCTION WORK AS PER THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.

STOP SIGNS, TRAFFIC CONTROL SIGNS, AND STREET IDENTIFICATION SIGNS SHALL BE INSTALLED BEFORE OPENING THE ROAD TO TRAFFIC AND THE FINAL INSPECTION OF THE PROJECT.

SEEDING & MULCHING

ALL SEEDING, FERTILIZING AND MULCHING SHALL BE PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS OF O.D.O.T. ITEM 659, CLASS 1 AND/OR AS DIRECTED BY THE ENGINEER.

SEDIMENT CONTROL SHALL BE ACCOMPLISHED BY SEEDING, FERTILIZING AND MULCHING IMMEDIATELY UPON COMPLETION OF EXCAVATION OR FILL AND FINISHED GRADING IN ACCORDANCE WITH ITEM 659, OHIO DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIAL SPECIFICATIONS AND/OR AS DIRECTED BY THE ENGINEER.

ENVIRONMENTAL PROTECTION MEASURES

PROJECT AREA SAFETY

THE CONTRACTOR SHALL SECURE ALL EQUIPMENT AND MATERIALS DURING NON-WORKING HOURS. THE CONSTRUCTION SITE SHALL BE MADE SAFE FOR ANY PERSONS WHO ARE ON-SITE AFTER HOURS. THE CONTRACTOR SHALL MAKE SURE ALL TRENCHES AND EXCAVATED AREAS ARE EITHER COMPLETELY BACKFILLED OR PLATED AS WELL AS PROTECTED USING BARRELS OR FENCING IN SUCH A MANNER AS TO POSITIVELY SEPARATE VEHICLES AND PEDESTRIANS FROM THE PROJECT WORK AREA DURING NON-WORKING HOURS.

EROSION AND SEDIMENTATION CONTROL

PRIOR TO THE START OF CONSTRUCTION, ALL CONSTRUCTION STAGING AREAS AND SOIL WASTING AREAS MUST RECEIVE APPROVAL THROUGH OHIO EPA-DEFA, PROJECT CONTACT: KRISTY HUNT, OHIO EPA-DEFA, PHONE: (614) 644-3661.

EROSION AND SEDIMENTATION CONTROL PRACTICES SHALL BE INSTALLED TO NATURAL RESOURCES CONSERVATION SERVICE OR EQUIVALENT STANDARDS AND SPECIFICATIONS FOR PARTICULAR TECHNIQUES. THE PRACTICES ARE TO BE MAINTAINED IN EFFECTIVE WORKING CONDITION DURING CONSTRUCTION AND UNTIL ALL DISTURBED AREAS HAVE BEEN PERMANENTLY STABILIZED.

CLEARING AND GRUBBING SHALL NOT COMMENCE UNTIL THE CONTRACTOR IS PREPARED TO START CONSTRUCTION.

ALL MATERIALS TO BE DISPOSED OF OFF-SITE MUST BE DISPOSED OF IN AN ENVIRONMENTALLY SOUND MANNER IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REGULATIONS. NO EXCESS MATERIALS ARE TO BE DISPOSED OF IN ANY WETLAND, FLOOD PLAIN, OR OTHER ENVIRONMENTALLY SENSITIVE AREAS. EROSION CONTROL MEASURES AT THE DISPOSAL SITE MUST BE INSTALLED AND MAINTAINED UNTIL DISPOSAL IS COMPLETE AND THE DISPOSAL SITE IS PERMANENTLY STABILIZED.

CONTRACTOR SHALL REMOVE DAILY ALL MUD, SOIL, AND DEBRIS THAT MAY BE TRACKED ONTO EXISTING STREETS, DRIVES, OR WALKS BY HIS EQUIPMENT OR THAT OF SUBCONTRACTORS OR SUPPLIERS.

UNPAVED AREAS SHALL BE WET DOWN, AS NECESSARY, USING WATER OR OTHER ENVIRONMENTALLY BENIGN SUBSTANCE DURING CONSTRUCTION TO MINIMIZE DUST.

SOIL AND OTHER MATERIAL SHALL NOT BE STORED NEXT TO OR WITHIN THE DRIP-LINE OF TREES.

WHEN WORKING ADJACENT TO A WATERWAY, THE CONTRACTOR SHALL MAINTAIN A BUFFER ZONE OF UNDISTURBED VEGETATION BETWEEN THE WORK AREA AND THE WATERWAY. IF A BUFFER ZONE OF VEGETATION CANNOT PREVENT SILTATION OF THE WATERWAY, SILT BARRIERS SHALL ALSO BE INSTALLED BY THE CONTRACTOR IN THESE AREAS TO PREVENT SEDIMENT-LADEN RUNOFF FROM ENTERING THE WATERWAY.

IF WORK IS SUSPENDED FOR ANY REASON, THE CONTRACTOR SHALL MAINTAIN THE SOIL EROSION AND SEDIMENTATION CONTROLS IN GOOD OPERATING CONDITION DURING THE SUSPENSION OF THE WORK. ALSO, WHEN SEASONAL CONDITIONS PERMIT AND THE SUSPENSION OF WORK IS EXPECTED TO EXCEED A PERIOD OF ONE MONTH, THE CONTRACTOR SHALL PLACE TOPSOIL, FINE GRADE, SEED, FERTILIZE, AND MULCH ALL DISTURBED AREAS LEFT EXPOSED WHEN WORK IS STOPPED.

AIR POLLUTION / NOISE CONTROL

CONSTRUCTION SHALL BE LIMITED TO DAYTIME HOURS.

CONSTRUCTION EQUIPMENT SHALL BE PROVIDED WITH INTAKE SILENCERS AND MUFFLERS, AS REQUIRED BY SAFETY STANDARDS.

ALL CONSTRUCTION VEHICLES SHALL BE EQUIPPED WITH PROPER EMISSIONS CONTROL EQUIPMENT.

ALL EQUIPMENT AND MACHINERY SHALL BE MAINTAINED TO MINIMIZE EXHAUST EMISSIONS AND NOISE.

TREES / VEGETATION PROTECTION

DUE TO THE POSSIBLE PRESENCE OF INDIANA BAT HABITAT, NO TREES SHALL BE REMOVED DURING THE NESTING SEASON, BETWEEN THE DATES OF MARCH 30TH AND OCTOBER 1. IF TREE REMOVAL DURING THE NESTING SEASON IS NECESSARY, THEN A NET SURVEY TO VERIFY THE PRESENCE OR ABSENCE OF THE INDIANA BAT, WITHIN THE PROJECT AREA, WILL NEED TO OCCUR PRIOR TO THE REMOVAL OF ANY TREES.

SOIL AND OTHER MATERIAL SHALL NOT BE STORED NEXT TO OR WITHIN THE DRIP-LINE OF TREES.

THE CONTRACTOR SHALL EXERCISE CARE TO NOT DAMAGE THE BARK, TRUNKS, LIMBS, AND ROOTS OF VEGETATION LOCATED NEAR THE PROJECT CONSTRUCTION AREA. SHOULD DAMAGE OCCUR, THE CONTRACTOR SHALL REPAIR ALL INJURIES BY PROPERLY DRESSING, CUTTING, AND BRACING THE VEGETATION USING ONLY APPROVED TREE SURGERY METHODS, TOOLS, AND MATERIALS.

SELECTIVE PRUNING OF TREE LIMBS PRIOR TO CONSTRUCTION SHALL ONLY BE DONE WITHIN ESTABLISHED EASEMENTS WHERE REMOVAL IS NECESSARY FOR OPERATION OF EQUIPMENT.

DEWATERING

ALL DEWATERING FLOWS SHALL BE SETTLED IN SILTATION BASINS OR DIRECTED THROUGH FILTERING DEVICES BEFORE BEING DISCHARGED TO STABILIZED SITES, SUCH AS STREAMS OR STORM SEWERS, NOT ONTO EXPOSED SOILS, STREAM BANKS, OR ANY OTHER SITE WHERE THE FLOW COULD CAUSE EROSION.

SILT FROM CONSTRUCTION SITES SHALL NOT BE PERMITTED TO ENTER STORM SEWERS. WHEN CONSTRUCTION OCCURS NEAR STORM SEWER INLETS, EROSION CONTROL MEASURES SUCH AS INLET FILTERS SHALL BE USED TO PREVENT SILT FROM ENTERING THE STORM SEWERS.

ALL WATER SHALL BE CONVEYED FROM THE CONSTRUCTION SITE IN A CLOSED CONDUIT. DO NOT USE TRENCH EXCAVATIONS AS TEMPORARY DRAINAGE DITCHES.

ARCHAEOLOGICAL / HISTORICAL RESOURCES

CONTRACTORS AND SUBCONTRACTORS ARE REQUIRED UNDER OHIO REVISED CODE SECTION 149.53 TO NOTIFY THE OHIO HISTORICAL SOCIETY AND THE OHIO HISTORIC SITE PRESERVATION BOARD OF ARCHAEOLOGICAL DISCOVERIES IN THE PROJECT AREA, AND TO COOPERATE WITH THOSE ENTITIES IN ARCHAEOLOGICAL AND HISTORIC SURVEYS AND SALVAGE EFFORTS. CONTACT: OHIO HISTORIC PRESERVATION OFFICE, PHONE: 614-298-2000

PROHIBITED CONSTRUCTION ACTIVITIES

DISPOSING OF EXCESS OR UNSUITABLE EXCAVATED MATERIAL OR TREES, BRUSH, AND OTHER DEBRIS IN ANY STREAM CORRIDOR, ANY WETLANDS, ANY SURFACE WATERS, OR AT UNSPECIFIED LOCATIONS.

STOCKPILING MATERIALS OR STORING CONSTRUCTION EQUIPMENT AND VEHICLES ON PROPERTY NOT SPECIFIED ON THE PLANS BY THE ENGINEER FOR SUCH PURPOSES.

INDISCRIMINATE, ARBITRARY, OR CAPRICIOUS OPERATION OF EQUIPMENT IN ANY STREAM CORRIDORS, ANY WETLANDS, ANY SURFACE WATERS, OR OUTSIDE THE EASEMENT LIMITS.

PUMPING OF SEDIMENT-LADEN WATER FROM TRENCHES OR OTHER EXCAVATIONS DIRECTLY INTO ANY SURFACE WATERS, ANY STREAM CORRIDORS, ANY WETLANDS, OR STORM SEWERS; ALL SUCH WATER SHALL BE PROPERLY FILTERED OR SETTLED TO REMOVE SILT PRIOR TO RELEASE.

DISCHARGING POLLUTANTS SUCH AS CHEMICALS, FUELS, LUBRICANTS, BITUMINOUS MATERIALS, RAW SEWAGE, OR OTHER HARMFUL WASTE INTO OR ALONGSIDE OF RIVERS, STREAMS, IMPOUNDMENTS, OR INTO ANY NATURAL OR MAN-MADE CHANNELS.

PERMANENT OR UNSPECIFIED ALTERATION OF THE FLOW LINE OF ANY STREAM.

OPEN BURNING OF PROJECT DEBRIS WITHOUT A PERMIT.

DISCHARGING INJURIOUS SILICA DUST CONCENTRATIONS INTO THE ATMOSPHERE RESULTING FROM BREAKING, CUTTING, CHIPPING, DRILLING, BUFFING, GRINDING, POLISHING, SHAPING OR SURFACING CLOSER THAN 200 FEET TO PLACES OF RESIDENCES OR COMMERCIAL, PROFESSIONAL, QUASI-PUBLIC, OR PUBLIC PLACES OF HUMAN OCCUPATION.

RUNNING WELL POINT OR PUMP DISCHARGE LINES THROUGH PRIVATE PROPERTY OR PUBLIC PROPERTY AND RIGHTS-OF-WAY WITHOUT THE WRITTEN PERMISSION OF THE PROPERTY OWNER AND THE CONSENT OF THE ENGINEER.

OPERATIONS ENTAILING THE USE OF VIBRATORY HAMMERS OR COMPACTORS OUTSIDE THE HOURS OF 8:00 A.M. AND 5:00 P.M. OR OUTSIDE THE HOURS ALLOWED FOR CONSTRUCTION BY LOCAL ORDINANCES OR REGULATIONS.

CLOSING OFF CLEAR ACCESS TO ANY PUBLIC ALLEY, STREET, ROAD, AVENUE, OR BOULEVARD WITHOUT THE PRIOR CONSENT OF MUNICIPAL OFFICIALS AND THE ENGINEER, AND CLOSING CLEAR ACCESS:

- BY FIRE PROTECTION EQUIPMENT AND EMERGENCY VEHICLES;

- BY THE PUBLIC TO ANY COMMERCIAL OR PROFESSIONAL PLACE OF BUSINESS, QUASI-PUBLIC OR PUBLIC ESTABLISHMENT, OR RESIDENCE; OR

- BY VEHICLES TO DRIVEWAYS WITHOUT PROVIDING ALTERNATE ACCESS.

CALCULATED	CHECKED
TM	JS

REV. NO.	DATE

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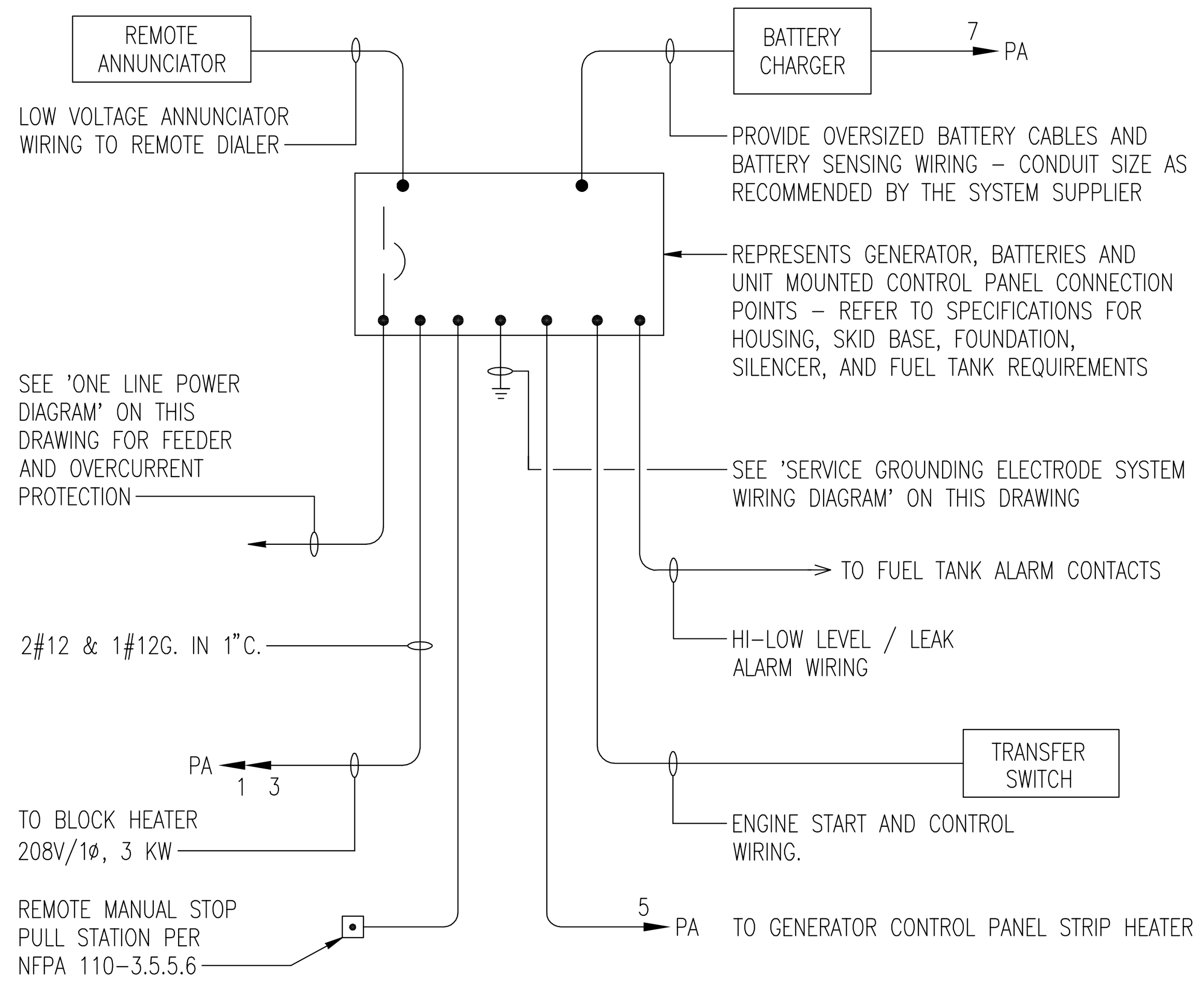
SEWER SEPARATION IMPROVEMENTS PHASE I
GENERAL NOTES

VILLAGE OF CRESTLINE



EMERGENCY / STANDBY GENERATOR WIRING DIAGRAM

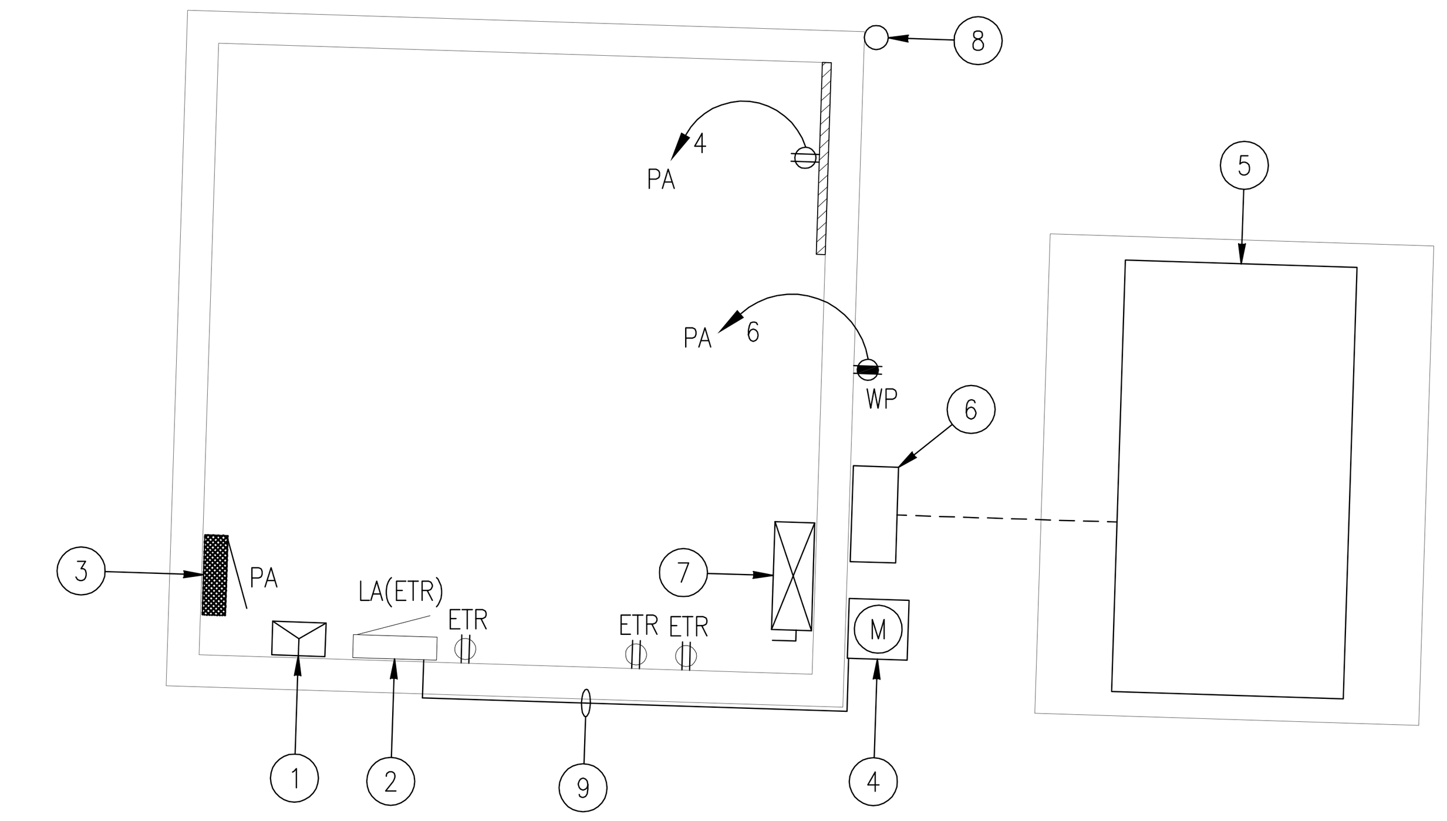
SCALE: NONE

NOTES:

1. THIS DIAGRAM INDICATES TYPICAL REQUIREMENTS AND IS NOT INTENDED FOR INSTALLATION. SYSTEM SUPPLIER SHALL PROVIDE INSTALLATION DRAWINGS AND WIRING DIAGRAMS. EXACT SYSTEM REQUIREMENTS SHALL BE COORDINATED WITH THE SYSTEM SUPPLIER.
2. SYSTEM SUPPLIER SHALL SUPERVISE SYSTEM INSTALLATION.
3. ALL WIRING SHALL BE VERIFIED WITH SYSTEM SUPPLIER. CONDUIT SHALL BE 1" MINIMUM, SIZED PER THE NATIONAL ELECTRICAL CODE. FLEXIBLE LIQUID TIGHT CONDUIT SHALL BE USED FOR FINAL CONNECTIONS AT THE GENERATOR.
4. REFER TO 'SERVICE GROUNDING ELECTRODE SYSTEM WIRING DIAGRAM' ON THIS DRAWING FOR GROUNDING REQUIREMENTS.
5. REFER TO 'ONE LINE POWER DIAGRAM' ON THIS DRAWING FOR FEEDER AND OVERCURRENT PROTECTION REQUIREMENTS.
6. REFER TO SPECIFICATIONS FOR ADDITIONAL SYSTEM REQUIREMENTS.

ELECTRICAL ABBREVIATIONS

ABBREVIATION	DESCRIPTION
A	AMPERES
AF	AMP FUSED
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AS	AMP SWITCH
AWG	AMERICAN WIRE GAUGE
C.	CONDUIT
C/B	CIRCUIT BREAKER
EC	ELECTRICAL CONTRACTOR
EMT	ELECTRICAL METALLIC TUBING
G.	GROUND
GFCI	GROUND FAULT CIRCUIT INTERRUPTER – PERSON PROTECTION
HP	HORSE POWER
KAIC	KILOAMPERES INTERRUPTING CURRENT RATING
KW	KILOWATTS
LTG	LIGHTING
MCB	MAIN CIRCUIT BREAKER
NEC	NATIONAL ELECTRICAL CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURER ASSOCIATION
OBC	OHIO BUILDING CODE
P	POLE
REC	RECEPTACLE
UON	UNLESS OTHERWISE NOTED
V	VOLTS
W	WIRE
WP	WEATHERPROOF
ø	PHASE



ELECTRICAL PLAN

SCALE: 1/4" = 1'–0"

PLAN NOTES:

(1) TRANSFORMER 'XFMR–1' SHALL BE MOUNTED ON WALL NEAR CEILING.

(2) EXISTING PANEL 'LA' SHALL REMAIN.

(3) NEW PANEL 'PA' – VERIFY LOCATION IN FIELD.

(4) EXISTING METER SHALL REMAIN.

(5) EMERGENCY STANDBY GENERATOR – REFER TO 'ONE LINE POWER DIAGRAM' ON DRAWING 'E2' AND 'GENERATOR WIRING DIAGRAM' ON THIS DRAWING FOR REQUIREMENTS.

(6) AUTOMATIC TRANSFER SWITCH IN WEATHERPROOF ENCLOSURE – REFER TO 'ONE LINE POWER DIAGRAM' ON DRAWING 'E2' FOR REQUIREMENTS.

(7) NEW SERVICE ENTRANCE RATED FUSED DISCONNECT SWITCH FOR EXISTING SERVICE – REFER TO 'ONE LINE POWER DIAGRAM' ON DRAWING 'E2' FOR REQUIREMENTS.

(8) EC SHALL PROVIDE MAST WITH WEATHERHEAD AT HEIGHT REQUIRED BY TELECOMMUNICATIONS UTILITY COMPANY FOR NEW TELECOMMUNICATIONS SERVICE. EC SHALL PROVIDE 1" CONDUIT WITH PULL STRING TO TELECOMMUNICATIONS BACKBOARD AND GENERATOR ANNUCIATOR PANEL AUTOMATIC DIALER. OVERHEAD FEEDERS TO UTILITY SERVICE POLE BY UTILITY COMPANY.

(9) EC MAY REUSE EXISTING CONDUIT ON OUTSIDE OF BUILDING FOR CONNECTION FROM NEW TRANSFER SWITCH TO EXISTING PANEL 'LA'.

ELECTRICAL SYMBOL LEGEND

SYMBOL	DESCRIPTION
	HOMERUN TO A 20 AMPERE, SINGLE POLE CIRCUIT BREAKER (PANEL 'A', CIRCUIT NUMBER '1'), UON. PROVIDE QUANTITY OF CONDUCTORS TO ACCOMMODATE CIRCUITING AND CONTROL INDICATED.
	CONDUIT INSTALLED BELOW GRADE OR BELOW FINISHED FLOOR, UON
	CONDUIT TURNED UP
	DUPLEX RECEPTACLE (20A, 125V) AT 18" AFF, UON
	DUPLEX RECEPTACLE (20A, 125V) GROUND FAULT CIRCUIT INTERRUPTER TYPE AT 24" AFG, UON ('WP' = WEATHERPROOF)
	FUSED DISCONNECT SWITCH – SIZE AND FUSING AS INDICATED
	BRANCH CIRCUIT BREAKER PANELBOARD (208Y/120V, 3ø, 4 WIRE)
	BRANCH CIRCUIT BREAKER PANELBOARD (240V, 3ø, 3 WIRE)
	TRANSFORMER
	METER
	TELECOMMUNICATIONS BACKBOARD

BRANCH CIRCUIT BREAKER PANEL SCHEDULE

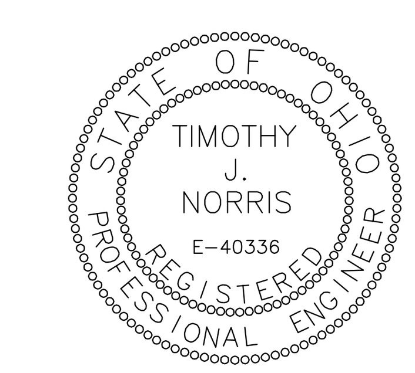
PANEL:	LA	BUSSING:	100A
VOLTAGE:	240V, 3P, 3W	MAIN DEVICE:	100A MCB
MOUNTING:	SURFACE	CONNECTED LOAD:	18.2 KW
BRACING:	22 KAIC	DEMAND LOAD:	13.0 KW

CKT	DESCRIPTION	LTG	REC	DATA	HVAC	MISC	C/B	ø	C/B	MISC	HVAC	DATA	REC	LTG	DESCRIPTION	CKT
1	MAIN						100/3	A	30/2	2.1					EXISTING PUMP	2
3								B		2.1						4
5								C		2.1						6
7	EXSITING PUMP					2.1	30/2	A	40/2	2.3			0.6	0.2	PANEL PA	8
9						2.1		B		2.3			0.2			10
11						2.1		C							SPACE	12
13	SPACE							A							SPACE	14
15	SPACE							B							SPACE	16
17	SPACE							C							SPACE	18
19	SPACE							A							SPACE	20
21	SPACE							B							SPACE	22
25	SPACE							C							SPACE	24
27	SPACE							A							SPACE	26
29	SPACE							B							SPACE	28
31	SPACE							C							SPACE	30

BRANCH CIRCUIT BREAKER PANEL SCHEDULE

PANEL:	PA	BUSSING:	100A
VOLTAGE:	240/120V, 1P, 3W	MAIN DEVICE:	50A MCB
MOUNTING:	SURFACE	CONNECTED LOAD:	6.1 KW
BRACING:	10 KAIC	DEMAND LOAD:	4.6 KW

CKT	DESCRIPTION	LTG	REC	DATA	HVAC	MISC	C/B	ø	C/B	MISC	HVAC	DATA	REC	LTG	DESCRIPTION	CKT
1	GEN. BLOCK HEATER					1.5	20/2	A	20/1	0.3			0.4	0.2	EXISTING CIRCUIT	2
3						1.5		B	20/1				0.2		TELECOMMUNICATIONS	4
5	GEN. BLOCK HEATER					1.0	20/1	A	20/1				0.2		EXTERIOR	6
7	GEN. BATTERY CHARGER					0.8	20/1	B	20/1						SPARE	8
9	SPACE							A							SPACE	10
11	SPACE							B							SPACE	12
13	SPACE							A							SPACE	14
15	SPACE							B							SPACE	16
17	SPACE							A							SPACE	18



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BID & PERMIT	10\14\11

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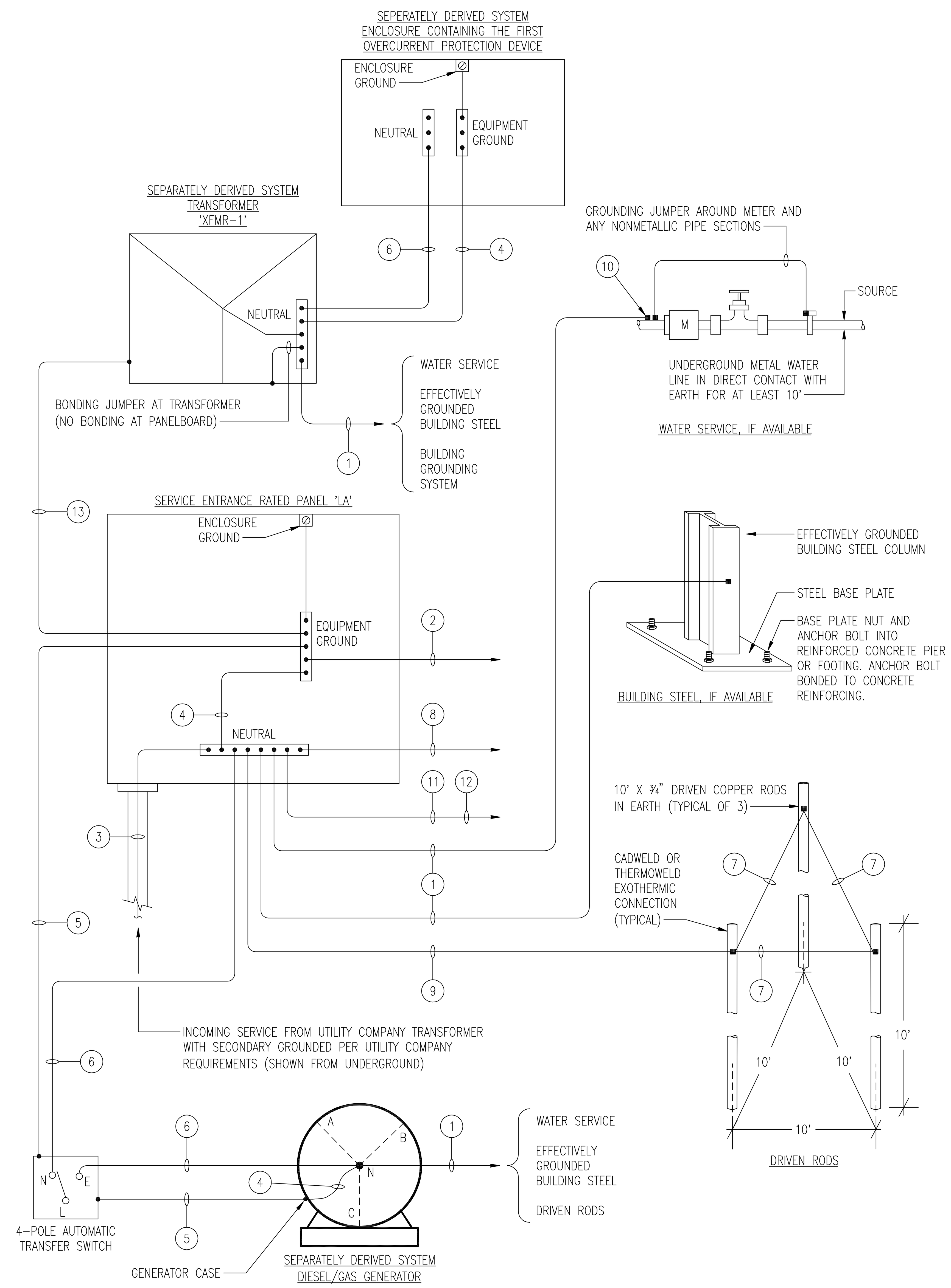
PUMP STATION
SITE ELECTRICAL PLAN STATION

VILLAGE OF CRESTLINE

E1
X

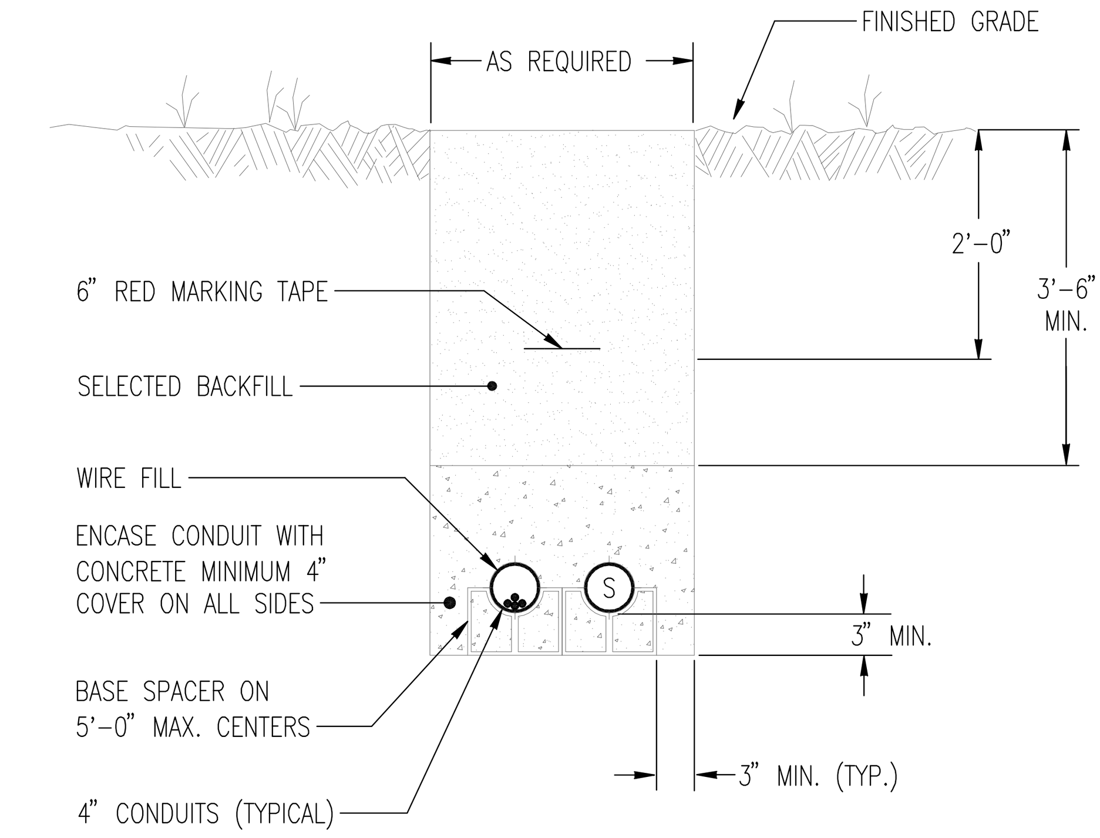


SERVICE GROUNDING ELECTRODE SYSTEM WIRING DIAGRAM

SCALE: NONE

NOTES:

1. THE GROUNDING ELECTRODE CONDUCTORS SHALL BE #2 PER TABLE 250.66 OF THE NEC. THE CONDUCTOR SHALL BE CONNECTED TO AN APPROVED GROUNDING ELECTRODE.
2. GROUND CONDUCTORS TO OTHER POINTS AND EQUIPMENT, AS REQUIRED BY NEC ARTICLE 250 AND SPECIFICATIONS SECTION 16050.
3. SERVICE ENTRANCE PHASE CONDUCTORS WITH GROUNDED (NEUTRAL) CONDUCTOR.
4. MAIN BONDING JUMPER SHALL BE SIZED PER TABLE 250.66 OF THE NEC.
5. EQUIPMENT GROUND CONDUCTOR SHALL BE #6 PER TABLE 250.122 OF THE NEC.
6. GROUNDED (NEUTRAL) CONDUCTOR.
7. BONDING CONDUCTOR SHALL BE #6 PER TABLE 250.66 OF THE NEC.
8. GROUND CONDUCTOR TO TELECOMMUNICATIONS MAIN GROUNDING BUSBAR – SIZED PER TECHNOLOGY SYSTEM SUPPLIER REQUIREMENTS, #3/0 MINIMUM.
9. GROUND ROD ELECTRODE – PROVIDE #6 AWG COPPER GROUNDING ELECTRODE CONDUCTOR, PER NEC 250.66(A).
10. CONNECTION SHALL BE MADE WITHIN 5' OF BUILDING ENTRANCE PER NEC 250.52(A)(1)
11. METAL WATER PIPING AND STRUCTURAL STEEL NOT INTENTIONALLY GROUNDED SHALL BE BONDED PER NEC 250.104 AND NEC TABLE 250.66.
12. OTHER METAL PIPING (GAS, ETC.) SHALL BE BONDED PER NEC 250.104 AND NEC TABLE 250.122.
13. EQUIPMENT GROUND CONDUCTOR FOR SEPARATELY DERIVED SYSTEM SHALL BE #10 PER NEC TABLE 250.122.



GENERATOR DUCT BANK DETAIL

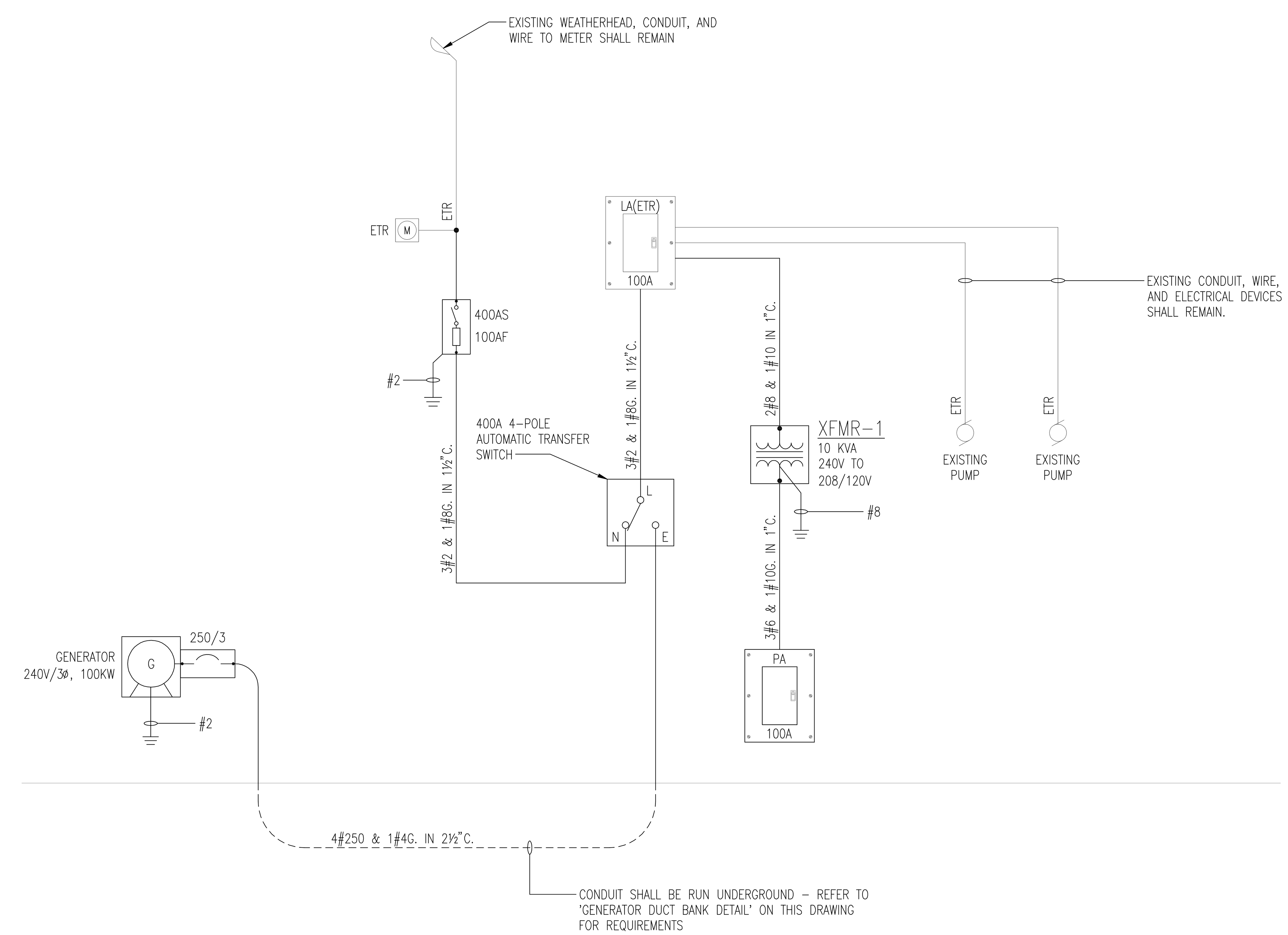
SCALE: NONE

NOTES:

1) MINIMUM SEPARATION BETWEEN CONDUITS SHALL BE 3".
2) REFER TO 'ONE LINE POWER DIAGRAM' ON THIS DRAWING FOR WIRE FILL.

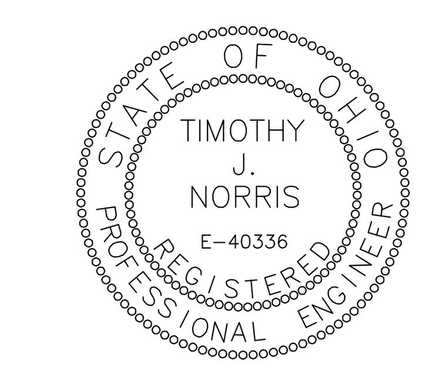
ONE LINE DIAGRAM LEGEND

SYMBOL	DESCRIPTION
	BRANCH PANELBOARD
	METER
	TRANSFORMER
	GROUND
	COMBINTATION FUSED DISCONNECT SWITCH
	AUTOMATIC TRANSFER SWITCH
	EMERGENCY STANDBY GENERATOR
	CIRCUIT BREAKER IN AN ENCLOSURE



ONE LINE POWER DIAGRAM

SCALE: NONE



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PUMP STATION
SITE ELECTRICAL PLAN STATION

VILLAGE OF CRESTLINE

E2
X

ELECTRICAL SPECIFICATIONS

ELECTRICAL GENERAL PROVISIONS

1. THE PROVISIONS OF THE INSTRUCTIONS TO BIDDERS, GENERAL CONDITIONS, SUPPLEMENTARY CONDITIONS, ALTERNATES, ADDENDA AND DIVISION 1 ARE A PART OF THIS SPECIFICATION. ELECTRICAL, ARCHITECTURAL, MECHANICAL AND ALL OTHER DRAWINGS AS WELL AS THE SPECIFICATIONS FOR ALL THE DIVISIONS SHALL BE DEFINED AS THE CONTRACT DOCUMENTS. CONTRACTOR SHALL REVIEW ENTIRE SET OF CONTRACT DOCUMENTS PRIOR TO BIDDING.

2. VISIT THE SITE OF THE WORK AND BECOME FAMILIAR WITH THE CONDITIONS AFFECTING THE INSTALLATION. THIS CONTRACTOR SHALL FIELD VERIFY THAT ALL ELECTRICAL WORK CAN BE INSTALLED AS SHOWN ON THE DRAWINGS. ANY DISCREPENCY SHALL BE COMMUNICATED IN WRITING TO THE ARCHITECT OR ENGINEER PRIOR TO SUBMISSION OF A PROPOSAL. SUBMISSION OF A PROPOSAL SHALL PRESUPPOSE KNOWLEDGE OF SUCH CONDITIONS AND NO ADDITIONAL COMPENSATION SHALL BE ALLOWED WHERE EXTRA LABOR OR MATERIALS ARE REQUIRED BECAUSE OF IGNORANCE OF THESE CONDITIONS.

3. "CONTRACTOR" AS USED WITHIN THE CONTEXT OF THE ELECTRICAL CONTRACT DOCUMENTS SHALL EXPLICITLY REFER TO THE "ELECTRICAL CONTRACTOR" AND THE ELECTRICAL CONTRACTOR'S "SUBCONTRACTORS". THE TERM "FURNISH" SHALL MEAN TO SUPPLY AND DELIVER TO THE PROJECT SITE, READY FOR UNLOADING, UNPACKING, ASSEMBLY, INSTALLATION, AND SIMILAR OPERATIONS. THE TERM "INSTALL" SHALL MEAN WORK WHICH INCLUDES THE ACTUAL UNLOADING, UNPACKING, ASSEMBLY, ERECTING, PLACING, ANCHORING, APPLYING, WORKING TO DIMENSION, FINISHING, CURING, PROTECTING, CLEANING, AND SIMILAR OPERATIONS. THE TERM "PROVIDE" SHALL MEAN TO FURNISH AND INSTALL, COMPLETE AND READY FOR THE INTENDED USE. THE TERM "EQUAL" SHALL MEAN TO MEET OR EXCEED THE STANDARDS OF THE SPECIFIED PRODUCTS OR LISTED MANUFACTURERS.

4. INCLUDE ALL LABOR, MATERIAL, EQUIPMENT, SERVICES AND PERMITS NECESSARY FOR THE PROPER COMPLETION OF ALL ELECTRICAL WORK SHOWN. ITEMS OMITTED, BUT NECESSARY TO MAKE THE ELECTRICAL SYSTEM COMPLETE AND WORKABLE, SHALL BE UNDERSTOOD TO FORM PART OF THE WORK. SECURE AND PAY FOR PERMITS AND INSPECTIONS REQUIRED FOR ELECTRICAL WORK.

5. IT IS THE PURPOSE OF THE ELECTRICAL DRAWINGS TO INDICATE THE APPROXIMATE LOCATION OF ALL EQUIPMENT, DEVICES, ETC. ASCERTAIN EXACT LOCATIONS AND ARRANGE WORK ACCORDINGLY. THE RIGHT IS RESERVED TO EFFECT REASONABLE CHANGES IN THE LOCATION OF DEVICES UP TO THE TIME OF ROUGHING-IN, WITHOUT ADDITIONAL COST TO THE OWNER. CHANGES IN LOCATION OF DEVICES RESULTING FROM THE CONTRACTOR'S FAILURE TO COMPLY WITH THE CONTRACT DRAWING OR SPECIFICATION REQUIREMENTS SHALL BE MADE AT NO ADDITIONAL COST TO THE OWNER.

6. RACEWAY SYSTEMS, CONDUIT, BOXES, GROUNDING, BUSBARS, HARDWARE, ETC. REQUIRED FOR TECHNOLOGY SYSTEMS, CABLING AND DEVICES SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR. THE ELECTRICAL CONTRACTOR SHALL FULLY COORDINATE ALL REQUIREMENTS WITH THE TECHNOLOGY SYSTEMS CONTRACTOR.

7. WORK SHALL BE INSTALLED IN ACCORDANCE WITH ALL APPLICABLE PROVISIONS OF LOCAL AND STATE CODES, AS WELL AS THE NATIONAL ELECTRICAL CODE (NEC), AS INTERPRETED BY THE LOCAL AUTHORITY HAVING JURISDICTION.

8. CONSULT THE DRAWINGS, PRODUCT DATA, WIRING DIAGRAMS AND SHOP DRAWINGS COVERING THE WORK FOR VARIOUS OTHER TRADES, THE FIELD LAYOUTS OF THE CONTRACTORS FOR THE TRADE AND MAKE ADJUSTMENTS ACCORDINGLY IN LAYING OUT THE ELECTRICAL WORK.

9. WARRANT THAT EQUIPMENT AND ALL WORK IS INSTALLED IN ACCORDANCE WITH GOOD ENGINEERING PRACTICE AND THAT ALL EQUIPMENT WILL MEET THE REQUIREMENTS SPECIFIED. GUARANTEE AGAINST DEFECTS IN WORKMANSHIP AND MATERIALS; REPAIR OR REPLACE ANY DEFECTIVE WORK, MATERIAL OR EQUIPMENT WITHIN ONE YEAR FROM DATE OF FORMAL WRITTEN ACCEPTANCE BY THE OWNER.

10. THE EXISTING ELECTRICAL SERVICE, AND ALL EXISTING LOW VOLTAGE COMMUNICATION SYSTEMS WITHIN THE BUILDING SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD. ANY SERVICE SHUTDOWNS THAT MAY BE REQUIRED SHALL BE SCHEDULED THROUGH THE OWNER AND SHALL BE DONE AT A TIME AS DIRECTED BY THE OWNER. NO ADDITIONAL COMPENSATION SHALL BE ALLOWED FOR THESE SHUTDOWN PERIODS EVEN THOUGH PREMIUM TIME WORK MAY BE REQUIRED. PROVIDE TEMPORARY SERVICE TO EQUIPMENT OR SYSTEMS THAT CANNOT BE SHUT DOWN, AS DETERMINED BY OWNER, AND AS DESCRIBED ELSEWHERE IN THESE SPECIFICATIONS.

11. BIDS SHALL BE BASED UPON THE SPECIFIED PRODUCTS OR LISTED ALTERNATIVES. WHERE ONLY ONE MAKE IS NAMED, IT SHALL BE PROVIDED. VERBAL REQUESTS OR APPROVALS SHALL NOT BE BINDING ON THE ARCHITECT, ENGINEER OR OWNER.

12. EQUIPMENT AND MATERIALS USED ON THIS PROJECT SHALL BE NEW AND U.L. LABELED FOR THE APPLICATION.

13. PREPARE SHOP DRAWINGS AND PRODUCT DATA FOR PANELBOARDS AND ALL OTHER SPECIFIED SYSTEMS AND COMPONENTS. THE SUBMITTALS THAT ARE RETURNED SHALL BE USED FOR PROCUREMENT. WHERE ADDITIONAL INSTALLATION DRAWINGS, WIRING DIAGRAMS OR OTHER DRAWINGS ARE SPECIFIED AS A PART OF THE SUBMITTAL, THEY SHALL BE SUBMITTED AT THE SAME TIME WITH SHOP DRAWINGS AND PRODUCT DATA.

14. THE CONTRACTOR SHALL KEEP ONE COMPLETE SET OF THE CONTRACT DRAWINGS ON THE PROJECT SITE ON WHICH SHALL BE RECORDED ANY DEVIATIONS OR CHANGES FROM SUCH CONTRACT DRAWINGS MADE DURING CONSTRUCTION. THE UPDATED CONTRACT DRAWINGS SHALL BECOME "RECORD DRAWINGS" OF THE COMPLETED CONSTRUCTION. AFTER THE PROJECT IS COMPLETED, THE RECORD DRAWINGS SHALL BE DELIVERED TO THE ARCHITECT IN GOOD CONDITION, AS A PERMANENT RECORD OF THE INSTALLATION AS CONSTRUCTED.

15. PROVIDE NAMEPLATES ON PANELBOARDS, SAFETY SWITCHES, CONTROL PANELS, AND RECEPTACLE COVERPLATES. UNLESS OTHERWISE INDICATED ON THE DRAWINGS, LETTERING SHALL INCLUDE THE NAME OR DESIGNATION OF EQUIPMENT, HORSEPOWER, VOLTAGE RATING AND SERVICE DESIGNATION. NAMEPLATES SHALL BE LAMINATED PHENOLIC WITH A BLACK SURFACE AND WHITE CORE. IDENTIFICATION WITH A DYMO TYPE INSTRUMENT IS NOT PERMISSIBLE. THE INSIDE COVER OF ALL RECEPTACLE COVERPLATES SHALL BE PERMANENTLY MARKED TO INDICATE THE PANEL AND CIRCUIT NUMBER OF THE RECEPTACLE. THE OUTSIDE OF THE COVERPLATES FOR ALL JUNCTION BOXES SHALL BE PERMANENTLY MARKED TO INDICATE THE SYSTEM. IDENTIFICATION SHALL BE ON THE INSIDE OF COVERPLATES FOR ALL JUNCTION BOXES IF THEY ARE LOCATED IN FINISHED AREAS. IDENTIFICATION OF BRANCH CIRCUITS SHALL BE TYPEWRITTEN ON DIRECTORY CARDS FURNISHED WITH ALL PANELS AND PLACED IN THE CARD HOLDER ON THE DOOR. PROVIDE NEW TYPEWRITTEN DIRECTORY CARDS WITH UPDATED SCHEDULES FOR ALL EXISTING PANELS WITH NEW OR MODIFIED CIRCUITS.

16. IDENTIFY SPARE CONDUITS AND CONDUIT STUBS AS FOLLOWS: IDENTIFY SYSTEM AND/OR PURPOSE AT SOURCE, IF POSSIBLE, AND AT TERMINATION END. ALSO, AT TERMINATION END, INDICATE LOCATION OF CONDUIT ORIGINATION.

17. AFTER INSTALLATION, TEST FOR GROUNDS, SHORT CIRCUITS AND PROPER FUNCTION OF EACH NEW SYSTEM AND RELATED WIRING. FAULTS IN THE INSTALLATION SHALL BE CORRECTED.

18. AFTER ALL TESTS AND ADJUSTMENTS HAVE BEEN COMPLETED, CLEAN ALL EQUIPMENT LEAVING EVERYTHING IN WORKING ORDER AT THE COMPLETION OF THIS WORK.

19. PROVIDE A TEMPORARY ELECTRICAL SERVICE ADEQUATE IN SIZE FOR HEATING, FOR THE USE OF ALL TRADES AND FOR THE LIGHTING OF EACH ROOM DURING CONSTRUCTION. TEMPORARY SERVICE CAN BE EXTENDED FROM THE OWNER'S EXISTING POWER DISTRIBUTION SYSTEM. THE OWNER MUST APPROVE OF THE POINT OF SUPPLY, THE METHOD OF EXTENSION AND THE ROUTING OF NECESSARY TEMPORARY FEEDERS. INSTALLATION SHALL CONFORM TO ARTICLE 590 OF THE NEC.

20. ALL CUTTING AND PATCHING IN CONSTRUCTION AS NECESSARY FOR INSTALLATION OF THIS WORK SHALL BE THE RESPONSIBILITY OF THIS DIVISION. HAVE CUTTING DONE BY SKILLED MECHANICS AS CAREFULLY AS POSSIBLE AND WITH AS LITTLE DAMAGE AS POSSIBLE. PROVIDE CUTTING AND PATCHING FOR INSTALLATION OF NEW AND/OR RELOCATED DEVICES AND ASSOCIATED CONDUITS IN EXISTING WALLS TO REMAIN.

21. DEMOLITION OF EXISTING ELECTRICAL EQUIPMENT IS A PART OF THE ELECTRICAL WORK. ALL CUTTING, PATCHING, FINISHING, ETC., FOR REMOVED AND RELOCATED ELECTRICAL EQUIPMENT AND DEVICES SHALL BE INCLUDED AS PART OF THE ELECTRICAL WORK. REFER TO THE CONTRACT DRAWINGS FOR EXACT REQUIREMENTS. PROPERLY DISPOSE OF BATTERIES AND PCB CONTAMINATED MATERIALS DURING DEMOLITION WORK AS REQUIRED BY LOCAL, STATE, AND REGIONAL CODES. IF ADDITIONAL INTERPRETATION IS REQUIRED REGARDING THE SCOPE OF DEMOLITION INTENT, CONTACT THE ENGINEER PRIOR TO BID.

BASIC MATERIALS AND METHODS

1. ALL BOXES AND COVERPLATES SHALL BE SUITABLE FOR THE APPLICATIONS, RIGIDLY SUPPORTED FROM THE BUILDING STRUCTURE INDEPENDENT OF THE CONDUIT SYSTEM. ALL BOXES SHALL BE 4"x4"x2" DEEP MINIMUM WITH COVERPLATES SUITABLE FOR THEIR INTENDED USE.

2. EXTERIOR UNDERGROUND CONDUITS SHALL BE SCHEDULE 40 PVC, ENCASED IN CONCRETE UNDER DRIVES AND ROADWAYS WITH A MINIMUM 3" ENVELOPE. CONDUITS IN CONCRETE FLOORS, DAMP OR WET LOCATIONS, OR EXPOSED HIGH TRAFFIC AREAS WHERE SUBJECT TO PHYSICAL ABUSE SHALL BE HEAVY WALL RIGID GALVANIZED STEEL. ALL OTHER INTERIOR CONDUITS SHALL BE ELECTRICAL METALLIC TUBING (EMT), UNLESS OTHERWISE NOTED ON THE DRAWINGS OR WITHIN THESE SPECIFICATIONS. CONDUITS SHALL BE 3/4" TRADE SIZE, MINIMUM, UNLESS OTHERWISE NOTED ON THE DRAWINGS OR WITHIN THESE SPECIFICATIONS. ALL EMT CONDUITS SHALL HAVE COLD-ROLLED STEEL DOUBLE SET SCREW FITTINGS.

3. CONDUITS THAT PASS FROM THE INTERIOR TO THE EXTERIOR OF THE BUILDING, OR ARE SUBJECT TO DIFFERENT TEMPERATURES, SHALL BE SEALED WITH AN APPROVED MATERIAL SUCH AS DUCT-SEAL TO PREVENT THE CIRCULATION OF COLD AIR TO A WARMER SECTION OF THE CONDUIT.

   A. CONDUITS THAT STUB THROUGH THE ROOF SHALL BE SUPPLIED WITH PIPE SEALS AS MANUFACTURED BY THE PATE CO. AND SHALL BE INSTALLED AS RECOMMENDED BY THE MANUFACTURER. PIPE SEALS SHALL BE ONE PIECE ALUMINUM BASE TYPE WITH FIVE INCH SLOPED ROOF SURFACE FLANGES, GRADUATED STEPPED PVC BOOTS AND ADJUSTABLE STAINLESS STEEL CLAMPS. RPS CORPORATION AND THYCURB CORPORATION ARE APPROVED EQUIVALENT MANUFACTURERS. THE ELECTRICAL CONTRACTOR SHALL COORDINATE AND VERIFY EXACT REQUIREMENTS WITH THE ROOFING CONTRACTOR BEFORE PROCUREMENT AND INSTALLATION OF THE PIPE SEALS.

   B. CONDUITS THAT STUB THROUGH THE FOUNDATION WALLS SHALL BE SUPPLIED WITH PIPE SEALS AS MANUFACTURED BY LINK-SEAL, OR BY EQUIVALENT METHOD AS APPROVED BY THE ARCHITECT. PIPE SEALS SHALL BE EPDM (BLACK) WITH STAINLESS STEEL HARDWARE. THE ELECTRICAL CONTRACTOR SHALL COORDINATE AND VERIFY EXACT REQUIREMENTS WITH THE ARCHITECT BEFORE PROCUREMENT AND INSTALLATION OF THE PIPE SEALS.

4. ALL BRANCH CIRCUIT CONDUITS SHALL BE EMT CONDUIT. A GREEN EQUIPMENT GROUNDING CONDUCTOR SHALL BE PROVIDED IN ALL EMT CONDUIT. THE CONDUIT OR METAL SHEATH SHALL ITSELF QUALIFY AS AN EQUIPMENT GROUNDING RETURN PATH IN ACCORDANCE WITH NEC 250.118. WIRING SHALL BE AS SPECIFIED ELSEWHERE IN THIS SECTION.

5. CONDUIT CONNECTIONS TO TRANSFORMERS, AND OTHER VIBRATING EQUIPMENT SHALL BE FLEXIBLE METAL "SEAL-TITE" TYPE "UA" CONDUIT AS MANUFACTURED BY THE AMERICAN BRASS COMPANY OR EQUIVALENT AND SHALL BE OF THE SAME SIZE AS THE FEEDER CONDUIT.

6. DUPLEX RECEPTACLES SHALL BE 20A, 125V, 2 POLE, 3 WIRE GROUNDING.

   A. GENERAL PURPOSE "SPECIFICATION GRADE" DUPLEX RECEPTACLES: HUBBELL #5352, LEVITON #5362 OR PASS & SEYMOUR #5362.

7. DUPLEX RECEPTACLES, WHERE INDICATED ON THE DRAWINGS OR WHERE REQUIRED BY CODE, SHALL HAVE INTEGRAL GROUND FAULT CIRCUIT INTERRUPTER (GFCI) PROTECTION AND SHALL BE 20A, 125V, 2 POLE, 3 WIRE GROUNDING: HUBBELL #GF5352, PASS & SEYMOUR #2091 OR LEVITON #8899. GFCI RECEPTACLES SHALL NOT BE THROUGH-WIRED. PROVIDE INDIVIDUAL DUPLEX GFCI RECEPTACLES AS SHOWN ON THE DRAWINGS.

8. ALL RECEPTACLES SHALL BE PROVIDED WITH A SELF-GROUNDING CLIP AT THE MOUNTING SCREW.

9. ALL RECEPTACLES SHALL BE GRAY UNLESS OTHERWISE INDICATED WITHIN THESE SPECIFICATIONS. VERIFY COLOR WITH THE ARCHITECT PRIOR TO PROCUREMENT OF THE DEVICES. ALL COVERPLATES SHALL BE CADMIUM PLATED, ROUND CORNER, STEEL COVERPLATES FOR SURFACE MOUNTED OUTLET BOXES. BOTH THE WIRING DEVICES AND THE COVERPLATES SHALL BE BY THE SAME MANUFACTURER.

10. WIRE AND CABLE FOR BRANCH CIRCUITS AND FOR FEEDERS SHALL BE 90 DEGREES C., 600VOLT, TYPE THHN/THWN, COPPER ONLY, UNLESS OTHERWISE NOTED ON THE DRAWINGS. TYPE XHHW SHALL ALSO BE ACCEPTABLE FOR FEEDERS. MINIMUM SIZE FOR POWER AND LIGHTING BRANCH CIRCUITS SHALL BE #12.

11. SAFETY SWITCHES SHALL BE HEAVY DUTY FUSIBLE OR NONFUSIBLE TYPE AS INDICATED ON THE DRAWINGS, AND SHALL BE SUITABLE FOR THE VOLTAGE AND CURRENT RATINGS AS SHOWN ON THE DRAWINGS.

12. FUSES RATED 600 AMPERES OR LESS, 600 VOLTS OR LESS, SERVING ALL LOADS SHALL BE U.L. CLASS RK-1, BUSSMANN DUAL ELEMENT, TIME DELAY "LOW PEAK", TYPE LPN-RK (250 VOLT) OR TYPE LPS-RK (600 VOLT), OR APPROVED EQUIVALENT. FUSES OF EQUIVALENT OVERLOAD AND SHORT-CIRCUIT INTERRUPTING PERFORMANCE, AS MANUFACTURED BY RELIANCE FUSE, FERRAZ-SHAWMUT, LITTELFUSE, GENERAL ELECTRIC OR S & C ARE ACCEPTABLE. EXACT FUSE TYPE REQUIRED FOR MOTOR PROTECTION SHALL BE PROVIDED AS RECOMMENDED BY THE STARTER MANUFACTURER.

13. DISCONNECT SWITCHES SHALL BE MANUFACTURED BY SQUARE 'D', GENERAL ELECTRIC, SIEMENS/ITE, OR CUTLER HAMMER/WESTINGHOUSE.

14. CONDUITS SHALL BE CONTINUOUS AND SECURED TO ALL BOXES IN SUCH A MANNER THAT EACH CONDUIT SYSTEM SHALL BE ELECTRICALLY CONTINUOUS FROM THE POINT OF SERVICE TO ALL DEVICE BOXES. RUN CONDUITS CONCEALED UNLESS OTHERWISE INDICATED. THE ACTUAL ROUTING OF CONDUITS SHALL BE INSTALLED TO SUIT THE VARIOUS FIELD CONDITIONS.

15. IN REMODELED AREAS WHERE IT IS NOT POSSIBLE TO INSTALL CONCEALED CONDUIT, PERMISSION MUST BE OBTAINED FROM THE ARCHITECT TO RUN SURFACE MOUNTED RACEWAYS OR CONDUIT. THE ROUTING AND ELEVATION MUST BE COORDINATED WITH THE ARCHITECT BEFORE INSTALLATION. EXPOSED RACEWAYS SHALL BE PAINTED TO MATCH ADJACENT FINISHES.

16. INDIVIDUAL BRANCH CIRCUITS ARE SHOWN ON THE DRAWINGS FOR CLARITY. LIGHTING AND RECEPTACLE CIRCUITS LESS THAN OR EQUAL TO 100 AMPERES MAY BE GROUPED FOR HOMERUNS, WITH A MAXIMUM OF TWO (2) CIRCUITS PER HOMERUN. NEUTRAL CONDUCTORS SHALL NOT BE SHARED.

17. IDENTIFY WIRE AND CABLE FOR BRANCH CIRCUITS AS CALLED FOR IN THE NATIONAL ELECTRICAL CODE. IDENTIFICATION OF FEEDERS SHALL BE BY MEANS OF COLORED TAPE AT TERMINALS.

18. ADJACENT DEVICES OF THE SAME VOLTAGE CLASS SHALL BE MOUNTED IN GANGED BOXES.

19. MOUNTING HEIGHTS TO THE CENTER OF OUTLET BOXES SHALL BE AS INDICATED ON THE DRAWINGS.

20. VERIFY MOUNTING HEIGHTS AND LOCATIONS WITH THE ARCHITECT PRIOR TO ROUGH-IN. REFER TO DETAILS AND INTERIOR WALL ELEVATIONS SHOWN ON THE ARCHITECTURAL DRAWINGS.

21. OUTLETS SHALL NOT BE INSTALLED BACK TO BACK.

22. ALL RECEPTACLES SHALL BE MOUNTED WITH THE GROUND OPENING ABOVE THE PHASE AND NEUTRAL OPENINGS.

23. ALL DEVICES SHALL BE SECURED WITH MORE THAN A SINGLE SCREW.

24. ALL HARDWARE, SUPPORTS, HANGERS, BRACKETS, ANGLE IRON, CHANNELS, RODS AND CLAMPS NECESSARY TO INSTALL ELECTRICAL EQUIPMENT SHALL BE PROVIDED TO SUIT THE FIELD CONDITIONS AND THE APPLICATIONS INTENDED AS SHOWN ON THE DRAWINGS. THE USE OF PERFORATED STRAPS IS NOT PERMITTED.

25. ALL EQUIPMENT MOUNTED ON INTERIOR EQUIPMENT ROOM WALLS WHERE ADDITIONAL SUPPORT IS REQUIRED SHALL BE ATTACHED TO 3/4" PAINTED PLYWOOD FIRE RATED BOARDS FURRED OUT 1" FROM WALL. BOARDS SHALL BE PAINTED TO MATCH WALL FINISHES.

POWER DISTRIBUTION

1. THE ELECTRICAL SERVICE TO THE EXISTING BUILDING SHALL REMAIN. THE BUILDING'S EXISTING POWER DISTRIBUTION SYSTEM SHALL BE MODIFIED AS SHOWN ON THE DRAWINGS AND SPECIFIED HEREIN. THE BUILDING'S EXISTING GROUNDING ELECTRODE SYSTEM SHALL BE MODIFIED AS SHOWN ON THE DRAWINGS AND SPECIFIED HEREIN.

2. GROUND ALL ELECTRICAL SYSTEM CONDUITS, RACEWAYS, MOTORS, PANELS, CABINETS, FIXTURES, METAL BOXES, AND OTHER EXPOSED NON-CURRENT CARRYING METAL PARTS OF ELECTRICAL EQUIPMENT IN ACCORDANCE WITH ALL PROVISIONS OF THE NEC, STATE BUILDING CODE AND LOCAL OR REGIONAL CODES.

3. GROUNDING OF THE ELECTRICAL SYSTEM SHALL BE BY MEANS OF AN INSULATED GROUNDING CONDUCTOR INSTALLED WITH FEEDER AND BRANCH CIRCUIT CONDUCTORS IN ALL CONDUITS, SIZED IN ACCORDANCE WITH NEC ARTICLE 250.122.

4. WHERE GROUNDING CONDUCTORS ARE SUBJECT TO MECHANICAL DAMAGE PROTECT SUCH CONDUCTORS BY ENCASEMENT IN CONCRETE OR INSTALLATION IN A RIGID METALLIC RACEWAY.

5. ALL TERMINATIONS OF THE GROUNDING CONDUCTORS SHALL BE BY MEANS OF SOLDERLESS CONNECTIONS.

6. GROUND ALL TRANSFORMERS IN ACCORDANCE WITH NEC ARTICLE 250.30. THE BONDING JUMPER SHALL BE DIRECTLY CONNECTED TO A GROUNDING ELECTRODE. THE TRANSFORMER CASE SHALL BE BONDED TO THE GROUNDING ELECTRODE CONDUCTOR, BUT SHALL NOT BE USED AS THE GROUNDING ELECTRODE. THE GROUNDING ELECTRODE CONDUCTOR SHALL BE PROTECTED WITHIN RIGID METALLIC CONDUIT. NEUTRAL CONDUCTORS SHALL NOT BE USED FOR EQUIPMENT GROUNDING. A BONDING JUMPER SHALL NOT BE PROVIDED IN PANELBOARDS.

7. FURNISH AND INSTALL BRANCH CIRCUIT BREAKER PANELBOARDS EQUIPPED WITH CIRCUIT BREAKERS, WITH FRAME AND TRIP RATINGS LISTED ON THE DRAWINGS. CIRCUIT BREAKERS SHALL BE THERMAL-MAGNETIC, MOLDED CASE BOLT-ON TYPE. PROVIDE TYPES AS REQUIRED. ALL CURRENT CARRYING PARTS OF THE BUS STRUCTURE SHALL BE TIN-PLATED ALUMINUM. EACH PANEL SHALL CONTAIN A 100% RATED NEUTRAL BUS AND A GROUNDING BUS. PANELS SHALL HAVE "DOOR-WITHIN-DOOR" TRIM, HINGED BOX TO FRONT TYPE WITH LATCH ON OUTER DOOR.

8. EACH PANEL, AS A COMPLETE UNIT, SHALL HAVE A MINIMUM SYMMETRICAL SHORT CIRCUIT CURRENT RATING OF 10,000 AMPERES FOR 208Y/120 VOLT RATED PANELS. CIRCUIT BREAKERS SHALL BE FULLY RATED. SERIES RATINGS ARE NOT PERMITTED.

9. EACH PANEL SERVED DIRECTLY BY A TRANSFORMER SECONDARY SHALL HAVE A MAIN CIRCUIT BREAKER OR OTHER MAIN OVERCURRENT PROTECTION.

10. NEW CIRCUIT BREAKERS OR FUSIBLE SWITCHES INSTALLED IN EXISTING PANELS SHALL MATCH THE EXISTING IN TYPE, MANUFACTURER (IF POSSIBLE), AND SHORT CIRCUIT RATINGS.

11. PANELS SHALL BE AS MANUFACTURED BY SQUARE D, SIEMENS/ITE, GENERAL ELECTRIC OR CUTLER HAMMER/WESTINGHOUSE.

12. PANELS SHALL BE MOUNTED SO THAT TOP OF THE CABINET IS AT 6'-0" ABOVE FLOOR. A GLAZED DIRECTORY FRAME SHALL BE PROVIDED INSIDE EACH PANEL DOOR AND SHALL BE OF SUFFICIENT SIZE TO GIVE A COMPLETE DESCRIPTION OF EACH CIRCUIT. TYPED DIRECTORY CARDS SHALL BE PROVIDED LISTING EACH CIRCUIT SERVED.

13. THE BRANCH CIRCUIT NUMBERS USED ON THE DRAWINGS SHALL BE APPLIED FOR THE CONSTRUCTION. HOWEVER, AT THE COMPLETION OF THE WORK, CIRCUIT NUMBER ADJUSTMENTS SHALL BE MADE AS REQUIRED TO PROVIDE BALANCED PHASE LOADING ON EACH PANEL.

14. SPARE CIRCUIT BREAKERS SHALL BE IDENTIFIED AS SUCH ON THE PANEL DIRECTORY CARDS AND SHALL BE LEFT IN THE "OFF" POSITION.

15. TRANSFORMERS SHALL BE 115 DEGREES C. TEMPERATURE RISE ABOVE A 40 DEGREES C. AMBIENT. INSULATION SYSTEM SHALL BE UL RECOGNIZED FOR 220 DEGREES C. TRANSFORMERS SHALL HAVE (4) 2-1/2% ABOVE NORMAL, FULL CAPACITY PRIMARY TAPS.

16. TRANSFORMERS SHALL BE AS MANUFACTURED BY ACME, SQUARE D, SIEMENS/ITE, GENERAL ELECTRIC, OR CUTLER HAMMER/WESTINGHOUSE.

17. PROVIDE WALL MOUNTING PLATFORMS OR STRUCTURE MOUNTED PLATFORMS FOR EACH TRANSFORMER RATED BELOW 112.5 KVA ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS, UNLESS OTHERWISE NOTED ON THE DRAWINGS.

COMMUNICATIONS

1. NEW TELECOMMUNICATIONS BACKBOARDS SHALL BE 4' WIDE X 8' HIGH X ¾" THICK AC PLYWOOD, PAINTED WITH (2) COATS OF FIRE RETARDANT WHITE PAINT ON BOTH SIDES PRIOR TO INSTALLATION. BACKBOARDS SHALL BE MOUNTED 6 INCHES ABOVE THE FINISHED FLOOR. THE RECEPTACLES SHOWN ON THE BACKBOARDS SHALL BE MOUNTED AT 18 INCHES ABOVE THE FINISHED FLOOR AND SHALL BE INSTALLED IN SURFACE MOUNTED, SINGLE GANG OUTLET BOXES WITH STAMPED, SHEET METAL COVER PLATES. VERIFY EXACT REQUIREMENTS WITH THE OWNER'S TECHNOLOGY SYSTEM SUPPLIER PRIOR TO INSTALLATION.

2. COMBINATION VOICE/DATA OUTLET BOXES SHALL BE 4 INCHES SQUARE WITH SINGLE GANG PLASTER RINGS. VOICE-ONLY, DATA-ONLY, FAX AND PAY TELEPHONE OUTLETS SHALL BE SIMILAR. BLANK COVERPLATES SHALL BE PROVIDED FOR ALL UNUSED OUTLETS. VERIFY EXACT REQUIREMENTS WITH THE OWNER'S TECHNOLOGY SYSTEM SUPPLIER PRIOR TO INSTALLATION.

3. ALL CONDUITS REQUIRED FOR COMBINATION VOICE/DATA OUTLETS AS SHOWN ON THE DRAWINGS SHALL BE INSTALLED COMPLETE WITH PULLWIRES. CONDUITS SHALL BE 1" MINIMUM.

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TIMOTHY J. NORRIS
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REGISTERED PROFESSIONAL ENGINEER

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PUMP STATION
SITE ELECTRICAL PLAN STATION

VILLAGE OF CRESTLINE

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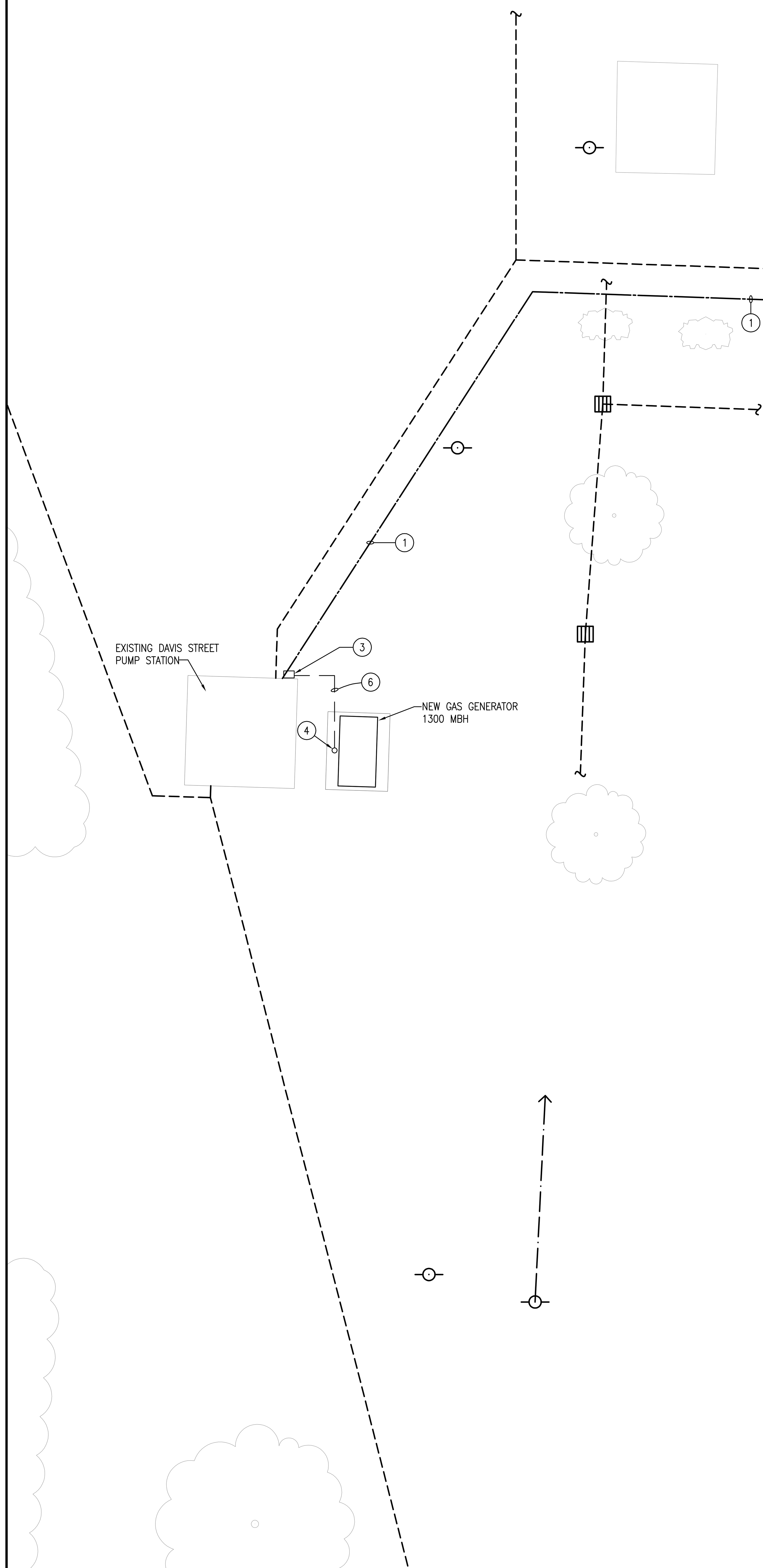
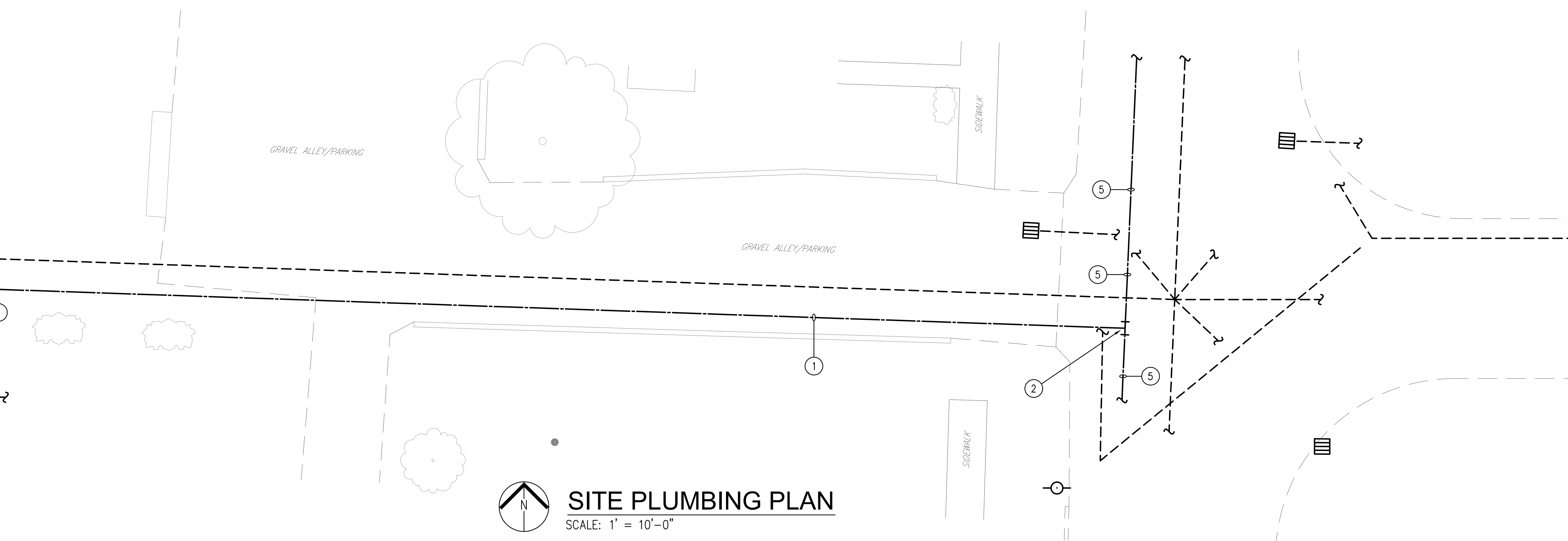

SITE PLUMBING PLAN

SCALE: 1' = 10'–0"

GENERAL NOTES

1. CONTRACTOR TO FIELD VERIFY EXACT LOCATION & SIZE OF EXISTING UTILITIES INCLUDING GAS PIPING, AVAILABLE GAS PRESSURE (PER COLUMBIA GAS OF OHIO) & DIRECTION OF FLOW PRIOR TO MAKING ANY NEW CONNECTIONS. PRIOR TO CONSTRUCTION, ANY DEFICIENCES FOUND SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER OR ARCHITECT. NO ADDITIONAL COMPENSATION WILL BE ALLOWED FOR FAILURE TO OBTAIN THIS INFORMATION.

2. CONTRACTOR SHALL BE ADVISED THAT CARE SHOULD BE EXERCISED DURING UNDERGROUND EXCAVATION IN THE EVENT THAT UTILITY LINES ARE PRESENT THAT ARE UNCHARTED.

3. THE EXISTING UTILITY INFORMATION DEPICTED ARE APPROXIMATE LOCATIONS. THE CONTRACTOR IS RESPONSIBLE FOR CONFIRMING THE LOCATION OF ALL EXISTING UTILITIES TWO (2) WORKING DAYS BEFORE ANY EXCAVATION OCCURS ON THE SITE AND PRIOR TO THE COORDINATION OF THE NEW UTILITIES LAYOUT AND INSTALLATION.

4. IF, DURING THE CONSTRUCTION, INTERFERENCE ARISES WITH EXISTING UTILITIES IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY THE UTILITY COMPANY INVOLVED. THE CONTRACTOR SHALL NOTIFY AT LEAST (7) SEVEN DAYS BEFORE BREAKING GROUND, ALL PUBLIC SERVICE CORPORATIONS HAVING WIRES, POLES, PIPES, CONDUITS, MANHOLES, OR OTHER STRUCTURES THAT MAY BE AFFECTED BY THIS OPERATION, INCLUDING ALL STRUCTURES WHICH ARE AFFECTED AND NOT SHOWN ON THESE PLANS. THERE WILL BE NO DELAYS ALLOWED FOR UTILITY INTERFERENCES.

5. ALL AREAS DISTURBED OR DAMAGED OUTSIDE THE LIMITS OF CONSTRUCTION SHALL BE REPAIRED AT NO COST TO THE OWNER AND TO THE SATISFACTION OF THE OWNER.

6. UTILITIES TO BUILDING ON SITE ARE TO BE COORDINATED WITH UTILITY COMPANIES, INCLUDING POLES, ABOVE/UNDERGROUND WIRES AND CABLES, ALL GAS, WATER, SEWER, ELECTRIC, DATA, TELEPHONE, ETC.

7. THE CONTRACTOR SHALL COORDINATE ALL UTILITY TIE–INS WITH THE APPROPRIATE BUILDING CONTRACTOR, ARCHITECT AND ENGINEER.

8. THE INSTALLING CONTRACTOR SHALL COORDINATE INCOMING GAS LINES WITH BUILDING AND PLUMBING CONTRACTORS.

PLAN NOTES:

(1) NEW GAS SERVICE LINE. 2 PSI GAS PRESSURE REQUESTED. GAS SERVICE LINE SHALL BE SIZED BY COLUMBIA GAS OF OHIO BASED ON AVAILABLE GAS PRESSURE. COORDINATE EXACT ROUTING OF GAS SERVICE LINE WITH COLUMBIA GAS OF OHIO, OWNER, ARCHITECT & ENGINEER PRIOR TO INSTALLATION. ALSO REFER TO GAS CONTACT NOTE AND ALL GENERAL NOTES ON THIS DRAWING.

(2) CONNECT NEW GAS SERVICE LINE TO EXISTING GAS MAIN. 2 PSI GAS PRESSURE REQUESTED. GAS SERVICE LINE SHALL BE SIZED BY COLUMBIA GAS OF OHIO BASED ON AVAILABLE GAS PRESSURE. PROVIDE VALVES, IF REQUIRED. COORDINATE WITH COLUMBIA GAS OF OHIO. COORDINATE EXACT ROUTING OF GAS SERVICE LINE WITH COLUMBIA GAS OF OHIO, OWNER, ARCHITECT & ENGINEER PRIOR TO INSTALLATION. ALSO REFER TO GAS CONTACT NOTE & ALL GENERAL NOTES ON THIS DRAWING.

(3) PROPOSED LOCATION OF GAS METER. FINAL LOCATION SHALL BE BY COLUMBIA GAS OF OHIO. FOR NEW GAS METER, PROVIDE VALVE EACH SIDE OF METER, ALL REQUIRED FITTINGS & REGULATOR (IF REQUIRED, SET REGULATOR TO MEDIUM GAS PRESSURE DOWN TO 2 PSI GAS PRESSURE, RUN 2 PSI THRU GAS METER) FOR COMPLETE INSTALLATION. PROVIDE MANIFOLD FOR GAS LOAD OF 1300 MBH. INSTALLATION & LOCATION OF GAS METER & MANIFOLD SHALL BE PER COLUMBIA GAS OF OHIO'S RULES AND REQUIREMENTS. ALSO REFER TO GAS CONTACT NOTE ON THIS DRAWING. RUN 1–1/4" GAS LINE AT 2 PSI FROM GAS METER DOWN THRU GRADE & RUN UNDERGROUND TO GENERATOR. BUILDING DISTRIBUTION HOUSE LINE GAS PRESSURE SHALL BE 2 PSI. P.C. SHALL COORDINATE EXACT ROUTING OF ALL GAS PIPING WITH THE OWNER, ELECTRICAL CONTRACTOR & THE ARCHITECT PRIOR TO INSTALLATION.

(4) 1–1/4" GAS UP THRU GRADE AT 2 PSI GAS PRESSURE & RUN TO GENERATOR, 1300 MBH. PROVIDE GAS COCK, UNION, DIRT LEG & REGULATOR, FISHER OR APPROVED EQUAL, 2 PSI GAS PRESSURE DOWN TO 13" WATER COLUMN. INSTALLATION SHALL BE PER GENERATOR MANUFACTURER'S RECOMMENDATIONS. CONTRACTOR SHALL VERIFY BTU INPUT AND GAS PRESSURE REQUIRED WITH ACTUAL GENERATOR PURCHASED, PRIOR TO CONSTRUCTION. COORDINATE WITH THE ELECTRICAL CONTRACTOR THE EXACT LOCATION OF THE GENERATOR.

(5) EXISTING GAS MAIN BELOW PARK ROAD. ALSO REFER TO GAS CONTACT NOTE & ALL GENERAL NOTES ON THIS DRAWING.

(6) 1–1/4" GAS LINE AT 2 PSI RUN UNDERGROUND TO GENERATOR. P.C. SHALL COORDINATE EXACT ROUTING OF ALL GAS PIPING WITH THE OWNER, ELECTRICAL CONTRACTOR & THE ARCHITECT PRIOR TO INSTALLATION.

GAS CONTACT NOTE:

GAS COMPANY: COLUMBIA GAS OF OHIO

CONTACT: HEATHER CLAYPOOL

PHONE: 1–(800) 440–6111 EXT. 3028

EMAIL: HCLAYPOOL@NISOURCE.COM

ALTERNATE: GAS BOOSTER SYSTEM

P.C. SHALL FURNISH & INSTALL A GAS BOOSTER SYSTEM, ELMO RIETSCHLE OR APPROVED EQUAL & ALL RELATED REQUIREMENTS AND COMPONENTS, IF 2 PSI GAS PRESSURE IS NOT AVAILABLE. P.C. SHALL VERIFY WITH COLUMBIA GAS OF OHIO AVAILABLE GAS PRESSURE & COORDINATE ALL WORK WITH THE OWNER & ARCHITECT. P.C. SHALL ALSO REFER TO ELECTRICAL DRAWINGS FOR EXACT LOCATION OF GAS GENERATOR & COORDINATE WITH THE ELECTRICAL CONTRACTOR PRIOR TO INSTALLATION. GAS GENERATOR REQUIRES 11"–14" WATER COLUMN NORMAL OPERATING GAS PRESSURE PER MANUFACTURER'S RECOMMENDATIONS. CONTRACTOR SHALL VERIFY NORMAL OPERATING GAS PRESSURE OF ACTUAL GENERATOR PURCHASED PRIOR TO INSTALLATION.

PLUMBING SYMBOL LEGEND

G	GAS LINE	
	GAS COCK	
	UNION	
	DP, DN	TEE LOOKING DOWN
	UP	TEE LOOKING UP
	DP, DN	ELBOW DOWN OR DROP
	UP	ELBOW UP OR RISE
	SHUT–OFF VALVE IN RISER	

PLUMBING ABBREVIATIONS

MBH	THOUSAND BTU PER HOUR
PC	PLUMBING CONTRACTOR

COORDINATION OF UNDERGROUND WORK

CONTRACTOR SHALL COORDINATE EXACT ROUTING OF UNDERGROUND GAS SERVICE LINE WITH ALL OTHER TRADES ON SITE PRIOR TO EXCAVATION AND INSTALLATION.

EXCAVATION AND BACKFILL

DO ALL EXCAVATION AND BACKFILLING NECESSARY FOR INSTALLATION OF WORK. PRIOR TO OPENING AN EXCAVATION, EFFORT SHALL BE MADE TO DETERMINE WHETHER UNDERGROUND INSTALLATIONS WILL BE ENCOUNTERED (I.E., GAS, TELECOMMUNICATIONS, SEWER, WATER, FUEL, ELECTRIC LINES, ETC.), AND WHERE SUCH UNDERGROUND INSTALLATIONS ARE LOCATED. WHEN THE EXCAVATION APPROACHES THE ESTIMATED LOCATION OF SUCH INSTALLATIONS, THE EXACT LOCATION SHALL BE DETERMINED. WHEN IT IS UNCOVERED, PROPER SUPPORTS SHALL BE PROVIDED FOR THE EXISTING INSTALLATION. UTILITY COMPANIES SHALL BE CONTACTED AND ADVISED OF THE PROPOSED WORK PRIOR TO THE START OF ACTUAL EXCAVATION. CONTACT THE OHIO UTILITIES PROTECTION SERVICE 48 HOURS PRIOR TO STARTING WORK. TELEPHONE AT 1–800–362–2764.

STATE OF OHIO
TIMOTHY J. NORRIS
E–40336
REGISTERED
PROFESSIONAL ENGINEER

CALCULATED M.S.K.
CHECKED T.J.N.

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PUMP STATION
SITE PLUMBING PLAN

VILLAGE OF CRESTLINE

P1
X

PLUMBING SPECIFICATIONS

GENERAL PLUMBING NOTES:

1. GENERAL NOTES, SYMBOLS LIST AND DETAILS ARE APPLICABLE TO ALL SHEETS MARKED "P".
2. SHEETS ARE DIAGRAMMATIC: DETERMINE LOCATIONS OF SYSTEMS AND COMPONENTS IN FIELD.
3. DIMENSIONS SHOWN ON PLAN ARE HORIZONTAL. DIMENSIONS SHOWN IN ELEVATION ARE VERTICAL EXCEPT THAT, IN WAY OF STRUCTURAL DIMENSIONS ARE MEASURED PERPENDICULAR TO FLANGE.
4. NEITHER ACCURACY NOR COMPLETION OF UTILITY LOCATIONS SHOWN ON SHEETS ARE GUARANTEED. DETERMINE EXACT LOCATIONS OF EXISTING UTILITIES IN FIELD, WHETHER OR NOT SHOWN ON DRAWINGS. EXERCISE CAUTION AND IDENTIFY LOCATIONS OF UNMARKED UTILITY LINES AS NECESSARY TO PERFORM WORK OF THIS SECTION.
5. ALL PLUMBING WORK SHALL BE IN ACCORDANCE WITH THE OHIO PLUMBING CODE & ALL APPLICABLE LOCAL CODES.
6. IT SHALL BE THE RESPONSIBILITY OF THIS CONTRACTOR TO COORDINATE HIS WORK WITH THAT OF ALL OTHER TRADES, INCLUDING (BUT NOT LIMITED TO), ELECTRICAL, HVAC, PROCESS PIPING, STRUCTURAL AND GENERAL TRADES.
7. ANY INTERFERENCE SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT AND THE OWNER'S REPRESENTATIVE, AND SHALL BE RESOLVED PRIOR TO THE INSTALLATION OF THE WORK INVOLVED.
8. NO WORK SHALL BE INSTALLED IN VIOLATION OF ANY GOVERNING CODES. ANY WORK SHOWN ON THE DRAWINGS WHICH IS IN VIOLATION OF SUCH CODES SHALL BE BROUGHT TO THE ATTENTION OF THE CONSTRUCTION MANAGER AND THE OWNER'S REPRESENTATIVE AND SHALL BE RESOLVED PRIOR TO THE INSTALLATION OF THE WORK INVOLVED.
9. MANUFACTURERS' MODEL NUMBERS ARE SPECIFIED SOLELY TO ESTABLISH STANDARDS OF QUALITY FOR PERFORMANCE AND MATERIALS.
10. PRODUCT INSTALLATION SHALL ADHERE TO MANUFACTURERS' RECOMMENDATIONS.
11. PROVIDE ACCESS PANELS FOR EQUIPMENT THAT REQUIRES PERIODIC SERVICE.
12. ALL PIPING ABOVE GRADE SHALL BE PROPERLY SUPPORTED BY THE BUILDING STRUCTURE AND SHALL NOT REST ON CEILING TILES OR CEILING STRUCTURE.
13. ALL SLEEVES THROUGH CONCRETE FLOORS AND ALL CORE DRILLING OF CONCRETE FLOORS AND WALLS SHALL BE BY THIS CONTRACTOR.
14. CONCRETE PADS AND PLATFORMS FOR WORK OF THIS SECTION WILL BE PROVIDED BY GENERAL CONTRACTOR. PROVIDE INFORMATION AND HARDWARE AS NECESSARY TO COORDINATE WORK.
15. SCHEDULE WORK OF THIS SECTION TO AVOID INTERFERING WITH FIREPROOFING WORK.
16. RUN PIPING CONCEALED, UNLESS SPECIFIED OTHERWISE, AND CLEAR OF CEILING INSERTS.
17. STRUCTURAL WELDING SHALL BE 1/4-INCH FILLET UNLESS REQUIRED OTHERWISE.
18. PROVIDE CLAMPS, OFFSETS, EXPANSION JOINTS, ANCHORS AND GUIDES AS NECESSARY TO PREVENT STRESS ON PIPING.
19. PITCH PRESSURE PIPING IN DIRECTION OF FLOW.
20. PLUMBING SYSTEM PIPING SHALL BE TESTED AND INSPECTED PER OHIO PLUMBING CODE SECTION 312.
21. ALL PLUMBING PIPING SHALL BE SUPPORTED IN ACCORDANCE WITH OHIO PLUMBING CODE SECTION 308.
22. GAS PIPING AND ALL RELATED INSTALLATIONS SHALL COMPLY WITH THE INTERNATIONAL FUEL GAS CODE.
23. INSTALL ALL THREADED CLEANOUT PLUGS WITH PIPE DOPE TO ALLOW FOR EASY REMOVAL IN THE FUTURE.
24. IT WILL BE THE RESPONSIBILITY OF THE PLUMBING CONTRACTOR TO INSURE THAT ITEMS TO BE FURNISHED UNDER PLUMBING CONTRACT WILL FIT THE SPACE AVAILABLE – PLUMBING CONTRACTOR SHALL MAKE NECESSARY FIELD MEASUREMENTS TO ASCERTAIN SPACE REQUIREMENTS, INCLUDING THOSE FOR CONNECTIONS AND SHALL FURNISH AND INSTALL SUCH SIZES AND SHAPES OF EQUIPMENT THAT ARE THE TRUE INTENT OF THE DRAWINGS AND SPECIFICATIONS.
25. PLUMBING CONTRACTOR SHALL SUPPLY AND INSTALL GAS PIPING AS SHOWN ON PLANS. PROVIDE GAS COCK, UNION AND DIRT LEG TO EACH PIECE OF GAS FIRED EQUIPMENT. ALL GAS PIPING SHALL COMPLY WITH LOCAL CODES. PLUMBING CONTRACTOR SHALL MAKE ALL FINAL CONNECTIONS TO ALL GAS EQUIPMENT. PROVIDE/INSTALL REGULATORS AT HVAC AND WATER HEATER EQUIPMENT WHERE REQUIRED OR AS SHOWN ON PLUMBING DRAWINGS TO REDUCE TO NORMAL OPERATING PRESSURE OF THE EQUIPMENT AS INDICATED ON THE EQUIPMENT NAME PLATES. PRESSURE CHECK GAS LINES WHEN HOOKED UP TO EQUIPMENT OR HVAC UNITS. FINAL LEAK TEST FROM SHUT–OFF TO EQUIPMENT SHALL BE DONE UNDER NORMAL PRESSURE WITH SOAP/WATER SOLUTION AFTER GAS PIPING IS CONNECTED.
26. VENTED GAS PRESSURE REGULATORS SHALL HAVE AN INDEPENDENT VENT TO THE OUTSIDE PER THE INTERNATIONAL FUEL GAS CODE (I.F.G.C.) SECTION 410.3.

GENERAL SPECIFICATIONS/PLUMBING

1. PERFORM WORK, PROVIDE MATERIALS AND EQUIPMENT FOR SYSTEMS SHOWN, SPECIFIED AND DESCRIBED ON DRAWINGS. COMPLETELY COORDINATE WORK OF THIS CONTRACT WITH WORK OF OTHER CONTRACTORS AND PROVIDE COMPLETE AND FULLY FUNCTIONAL INSTALLATION. REMOVE ALL DEBRIS CAUSED BY THIS CONTRACTOR'S WORK.
2. ADDRESS QUESTIONS REGARDING DRAWINGS TO ARCHITECT IN WRITING BEFORE AWARD OF CONTRACT. OTHERWISE, ARCHITECT'S INTERPRETATION OF MEANING AND INTENT OF SHEETS SHALL BE FINAL.
3. SHEETS ARE DIAGRAMMATIC AND INDICATE GENERAL ARRANGEMENT OF SYSTEMS AND WORK INCLUDED IN THE CONTRACT. IT IS NOT INTENDED TO SPECIFY OR SHOW EVERY OFFSET, FITTING OR COMPONENT, HOWEVER, CONTRACT DOCUMENTS REQUIRE COMPONENTS AND MATERIALS WHETHER OR NOT INDICATED OR SPECIFIED AS NECESSARY TO MAKE THE SYSTEMS BEING INSTALLED COMPLETE, TESTED AND OPERATIONAL. DETERMINE EXACT LOCATIONS OF UTILITIES, SYSTEMS AND COMPONENTS IN FIELD.
4. GIVE NOTICES, FILE PLANS, OBTAIN PERMITS AND LICENSES, PAY FEES AND BACK CHARGES AND OBTAIN NECESSARY APPROVALS FROM AUTHORITIES THAT HAVE JURISDICTION.
5. GUARANTEE WORK OF THIS CONTRACTOR IN WRITING FOR ONE YEAR FROM THE DATE OF OWNER'S ACCEPTANCE OF CERTIFICATE OF SUBSTANTIAL COMPLETION. PROMPTLY, REPAIR OR REPLACE DEFECTIVE MATERIALS, EQUIPMENT, WORKMANSHIP AND INSTALLATIONS THAT DEVELOP DEFECTS WITHIN THIS PERIOD. PROMPTLY AND TO OWNERS SATISFACTION, CORRECT DAMAGE CAUSED IN MAKING NECESSARY REPAIRS AND REPLACEMENTS UNDER GUARANTEE AT NO ADDITIONAL COST TO OWNER.
6. ALL MATERIALS, EQUIPMENT AND METHOD OF INSTALLATION SHALL BE IN ACCORDANCE WITH THE STANDARDS, REGULATIONS, CODES, ORDINANCES, AND LAWS OF LOCAL, STATE, AND FEDERAL GOVERNMENTS, AND OTHER AUTHORITIES THAT HAVE LAWFUL JURISDICTION.
7. PRIOR TO COMMENCING WORK, CONTRACTOR SHALL SUBMIT SIX COPIES OF THE SHOP DRAWINGS AND EQUIPMENT DATA FOR MATERIALS AND EQUIPMENT TO THE ARCHITECT FOR REVIEW AND APPROVAL. MATERIALS AND EQUIPMENT SHALL NOT BE INSTALLED BEFORE SHOP DRAWINGS ARE REVIEWED AND APPROVED.
8. MATERIALS AND EQUIPMENT SHALL BE LISTED BY UNDERWRITERS LABORATORIES (UL) AND APPROVED BY NFPA, ASME, AND AGA FOR INTENDED SERVICE.
9. GENERAL NOTES, SYMBOLS LIST AND DETAILS ARE APPLICABLE TO ALL PLUMBING DRAWINGS.
10. WORK SHALL BE EXECUTED IN A WORKMANLIKE MANNER AND SHALL PRESENT NEAT, RECTILINEAR APPEARANCE WHEN COMPLETED. MAINTAIN MAXIMUM HEADROOM AT ALL TIMES. DO NOT RUN PIPES, CONDUITS, OR DUCTS EXPOSED UNLESS SHOWN AND NOTED TO BE EXPOSED ON DRAWINGS. MATERIALS AND EQUIPMENT SHALL BE NEW AND INSTALLED ACCORDING TO MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS, SO THAT COMPLETED INSTALLATION SHALL OPERATE SAFELY AND EFFICIENTLY. COORDINATE INSTALLATION WITH OTHER TRADES.
11. AS WORK PROGRESSES AND FOR DURATION OF CONTRACT, MAINTAIN COMPLETE SET OF PRINTS OF CONTRACT DRAWINGS AT JOB SITE AT ALL TIMES. RECORD WORK COMPLETED AND ALL CHANGES FROM ORIGINAL CONTRACT DRAWINGS CLEARLY AND ACCURATELY INCLUDING WORK INSTALLED AS A MODIFICATION OR ADDITION TO THE ORIGINAL DESIGN.
12. ALL EQUIPMENT, PIPING, WIRING AND INSULATION, ETC., INSTALLED IN HVAC AIR PLENUM SPACES SHALL MEET CODE REQUIREMENTS FOR SMOKE AND COMBUSTIBILITY.
13. ALL SLEEVES THROUGH CONCRETE FLOORS AND FIRE RATED WALLS OR PARTITIONS SHALL BE FIRESTOPPED WITH UL RATED ASSEMBLIES WITH EQUAL FIRE RATING.

PLUMBING SYSTEMS & EQUIPMENT

1. GAS PIPING: FURNISH AND INSTALL COMPLETE DISTRIBUTION OF GAS PIPING. ALL CONNECTIONS TO HAVE BRASS UNIONS. AT EACH APPLIANCE INSTALL LEVER HANDLE GAS COCK AND 6" LONG DIRT LEG IN GAS LINE. CONSTRUCT METER MANIFOLD IN ACCORDANCE WITH GAS COMPANY REQUIREMENTS. ALL GAS PIPING SHALL BE PAINTED. COORDINATE WITH THE ARCHITECT.
2. HANGERS, ANCHORS, CLAMPS AND INSERTS
   a. PROVIDE ADJUSTABLE CLEVIS HANGERS FOR PIPING 2" AND LARGER, AND CAST BRASS SPLIT-RING HINGED HANGERS FOR SMALLER PIPING. SUPPORT PIPING FROM BUILDING STRUCTURE TO MAINTAIN REQUIRED GRADE AND PITCH OF PIPE LINES, PREVENT VIBRATION, SECURE PIPING IN PLACE. SECURE HANGERS TO INSERTS WHERE PRACTICAL. HANGER RODS SHALL HAVE MACHINE THREADS.
   b. HANGER RODS SHALL BE CONNECTED TO BEAM CLAMP, UL–APPROVED CONCRETE INSERTS OR PHILLIPS OR APPROVED EQUAL EXPANSION SHIELDS. RAMSET OR POWER DRIVEN INSERTS WILL NOT BE ALLOWED.
   c. HANGER SPACING SHALL MEET REQUIREMENTS OF STATE AND LOCAL CODES.
3. SLEEVES AND PENETRATIONS
   a. PIPE SLEEVES THROUGH FIRE–RATED CONSTRUCTION SHALL BE SCHEDULE 40 STEEL. SLEEVES THROUGH PARTITIONS AND NON–FIRE–RATED CONSTRUCTION SHALL BE 26 GAUGE GALVANIZED STEEL WITH LOCK LONGITUDINAL SEAMS.
   b. FIRE STOP PENETRATION SEALS IN FIRE–RATED CONSTRUCTION SHALL BE CERAMIC FIBRE, MINERAL FIBRE, OR SILICONE FOAM. PROVIDE MINERAL FIBRE BOARD, MATTING OR PUTTY FOR DAMMING AND FORMING. FINISH SEALS FLUSH TO WALL SURFACE AND FILL GAPS WITH SILICONE ADHESIVE SEALANT CAULKING.
   c. PACKING FOR SLEEVES THAT DO NOT REQUIRE MAINTENANCE OF FIRE RATING SHALL BE OAKUM, SILICATE FOAM, CERAMIC FIBRE WITH APPROVED SEALANT. PACK OR FOAM TO WITHIN ONE INCH OF BOTH WALL SURFACES. SEAL PENETRATION PACKING WITH APPROVED CAULKING AND PAINTABLE WATER–PROOF MASTIC SURFACE FINISH OR SILICONE CAULKING.
4. ACCESS
   a. PROVIDE PROPER ACCESS TO EQUIPMENT THAT REQUIRE INSPECTION, REPLACEMENT OR REPAIR. ACCESS PANELS SHALL BE A MINIMUM OF 12"x12".
5. CLEANING
   a. CLEAN SYSTEMS THOROUGHLY BEFORE TESTING. FIXTURES, EQUIPMENT, PIPE, VALVES, AND FITTINGS SHALL BE FREE OF GREASE, METAL CUTTINGS, DIRT AND OTHER FOREIGN MATERIAL.
   b. REPAIR STOPPAGE, DISCOLORATION AND DAMAGE TO PARTS OF BUILDING, FINISH AND FURNISHINGS DUE TO FAILURE TO PROPERLY CLEAN PIPING SYSTEM.
6. GAS PIPING UNDERGROUND: SCHEDULE 40 BLACK STEEL PIPE MILL WRAPPED WITH HILL–HUBBELL SERIES MGA–2 SEMI–PLASTIC RED ENAMEL OR SERIES OGA–2 PLASTIC RED ENAMEL, BOTH ENAMELS USING GLASS MAT AND FELT. THE TYPE OF WRAPPING USED SHALL BE DETERMINED BY OUTSIDE AIR TEMPERATURE AT THE TIME OF INSTALLATION OF PIPING. THE SERIES MGA BEING USED IF THE TEMPERATURE IS BELOW 32 DEGREES. ALL FITTINGS AND TEARS IN THE WRAPPING SHALL BE WRAPPED WITH 20 MILT THICK POLYKEN NO. 940 POLYETHYLENE OR SCOTCH NO. 51 POLYVINYL PRESSURE SENSITIVE TAPE. UNDERGROUND PIPING SHALL BE CONNECTED TO ABOVE GROUND PIPING WITH A MALONEY FLANGE INSULATION KIT OR STYLE 39 DRESSER COUPLING. FITTING SHALL BE FORGED LONG RADIUS WELDING FITTINGS. PROVIDE CATHODIC PROTECTION OF UNDERGROUND GAS PIPING BY USE OF MAGNESIUM ANODES OF NUMBER AND IN LOCATION APPROVED BY THE LOCAL GAS COMPANY PRIOR TO INSTALLATION OF ANY PIPING.
7. GAS PIPING ABOVE GROUND: GAS PIPING SHALL BE SCHEDULE 40 BLACK STEEL PIPE. FITTINGS IN 1–1/2" SMALLER PIPE SHALL BE CAST IRON SCREWED FITTINGS; FITTINGS IN 2–1/2" AND LARGER PIPE SHALL BE FORGED LONG RADIUS WELDING FITTINGS.
8. AT THE CONTRACTOR'S OPTION AND WHERE PERMITTED BY LOCAL CODE, THE CONTRACTOR MAY USE FOR GAS PIPING MATERIAL "TRACPIPE" FLEXIBLE GAS PIPING CORRUGATED STAINLESS STEEL TUBING (CSST) BY OMEGAFLEX, INC. OR APPROVED EQUAL FOR ABOVE GROUND AND UNDERGROUND GAS PIPING. GAS PRESSURE CARRIER SHALL BE SERIES 300 STAINLESS STEEL PER ASTM A240; NO ANNEALING OR HEAT–TRACING PERMITTED AFTER CORRUGATING OPERATION. FITTINGS SHALL BE AUTOFLARE MECHANICAL ATTACHMENT FITTINGS, MATERIAL: YELLOW BRASS WITH SERIES 300 STAINLESS STEEL INSERT. FITTINGS SHALL TERMINATE IN CLEANLY CUT TAPER PIPE THREADS CONFORMING TO THE STANDARD FOR PIPE THREADS, GENERAL PURPOSE, ANSI/ASME B1.20.1. A FLARED METAL–TO–METAL SEAT SHALL BE USED TO ACCOMPLISH GAS SEALING. NO ELASTOMER SEALING RINGS OR FIBER GASKETS PERMITTED. NON–METALLIC JACKET SHALL BE COLORED YELLOW TO VISIBLY INDICATE CONVEYANCE OF FUEL GAS. JACKET MATERIAL SHALL BE NON–HALOGENATED, FIRE RETARDANT POLYETHYLENE. POLYVINYL CHLORIDE (PVC) IS NOT PERMITTED. ASTM E84 RATINGS SHALL BE LESS THAN 14 FOR FLAME SPREAD AND SMOKE. PIPE SIZING AND ALL INSTALLATION REQUIREMENTS SHALL BE PER TRACPIPE DESIGN AND INSTALLATION GUIDE.
9. CAULKED JOINTS: CAULKED JOINTS IN CAST IRON PIPING SHALL BE CAULKED SOLID WITH CLEAN SPUN OAKUM, THEN RUN FULL WITH PURE LEAD AT ONE POURING. LEAD SHALL THEN BE CAULKED SOLID AND TIGHT WITH PROPER TOOLS AND FINISHED SLIGHTLY BELOW THE TOPS OF THE HUBS.
10. SCREWED JOINTS: SCREWED JOINTS SHALL BE MADE BY SCREWING THE PIPE WELL INTO THE SEAT TO GIVE THE PIPE A LONG GRIP. ALL SCREWED JOINTS SHALL BE MADE TIGHT WITHOUT THE USE OF FILLING SUBSTANCES OR BY CAULKING. A COAT OF RED LEAD OR GRAPHITE AND OIL MAY BE USED ON THE MALE THREAD ONLY.
11. UNION JOINTS: UNION JOINTS SHALL BE PROVIDED IN THE WATER CONNECTIONS TO ALL FIXTURES AND IN THE WASTE CONNECTIONS TO LAVATORIES, SINKS, ETC. WHERE UNIONS ARE NOT SUPPLIED AS A PART OF THE FIXTURE TRIMMING, CRANE ALL BRASS GROUND JOINTS UNIONS SHALL BE USED. UNIONS SHALL ALSO BE PLACED IN THE CONNECTION TO WATER, ETC., AND AT INTERVALS THROUGHOUT SO THAT ANY PORTION OF THE PIPING CAN BE REMOVED FOR REPAIRS WITHOUT CUTTING OR BREAKING THE PIPE. UNIONS MAY BE NIBCO, NATIONAL OR EQUAL.
12. VALVES:
   F. FUEL GAS COCKS – CRANE 254, HAYS 7005 OR MUELLER H–11003
13. CONTRACTOR SHALL PROVIDE ALL ROUGH–INS FOR "OWNER FURNISHED" EQUIPMENT AND MAKE FINAL CONNECTIONS. PROVIDE ALL PIPING, VALVES AND ACCESSORIES AS REQUIRED FOR COMPLETE INSTALLATION OF SYSTEM.
14. ALL PLUMBING PIPING SHALL BE PROPERLY IDENTIFIED WITH RELATED COLOR CODED ID PIPE MARKERS AS MANUFACTURED BY SETON OR APPROVED EQUAL.

STATE OF OHIO
TIMOTHY J. NORRIS
E–40336
REGISTERED PROFESSIONAL ENGINEER

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BID & PERMIT	10\14\11	M.S.K.	T.J.N.

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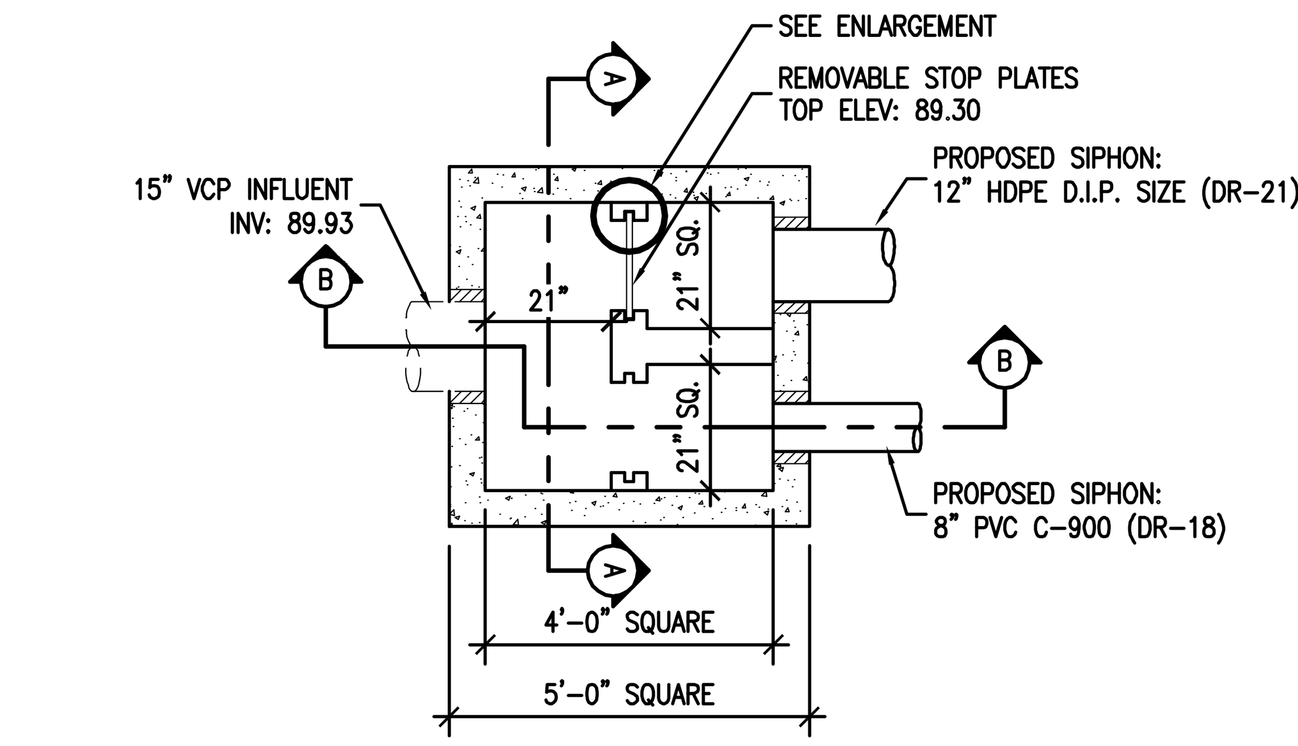
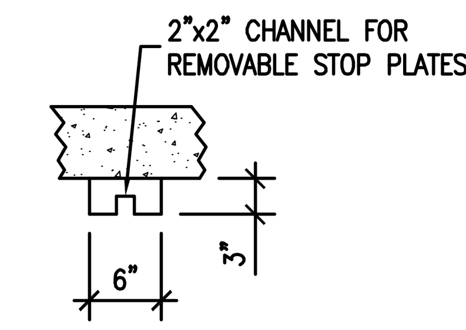
PUMP STATION
PLUMBING SPECIFICATIONS & NOTES

VILLAGE OF CRESTLINE

P2
X



PLAN VIEW



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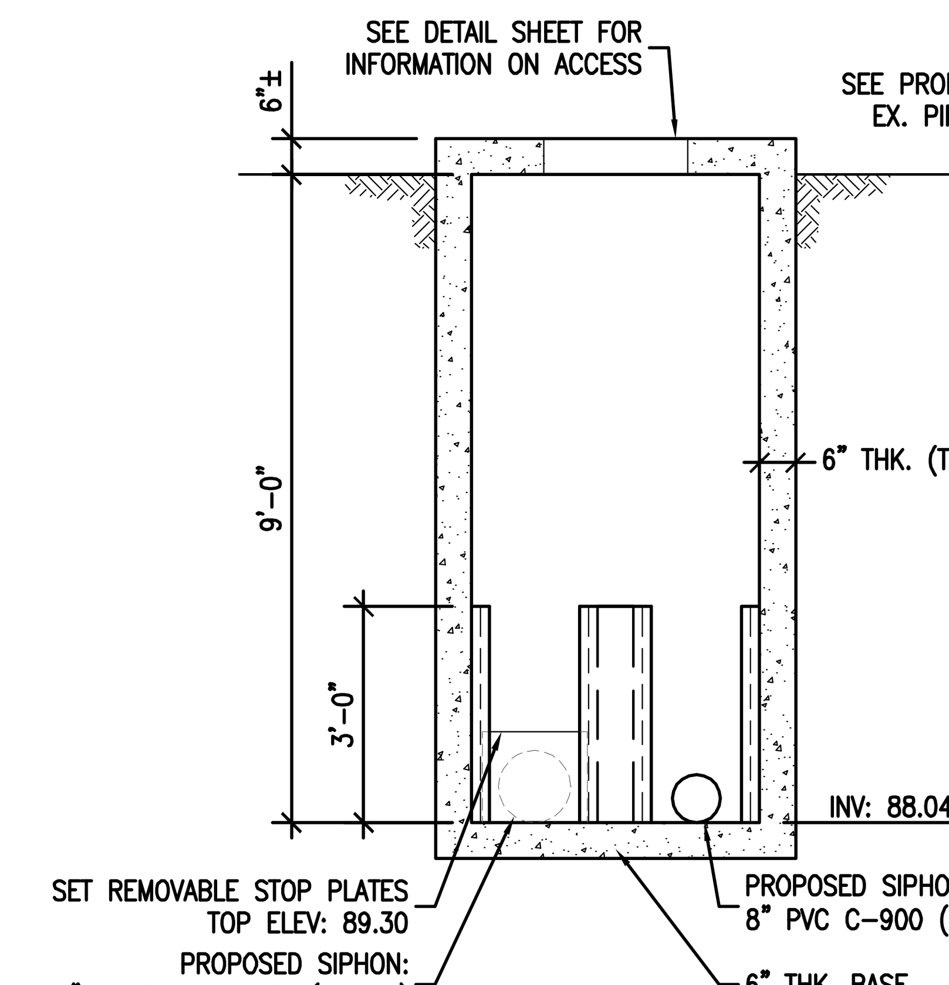
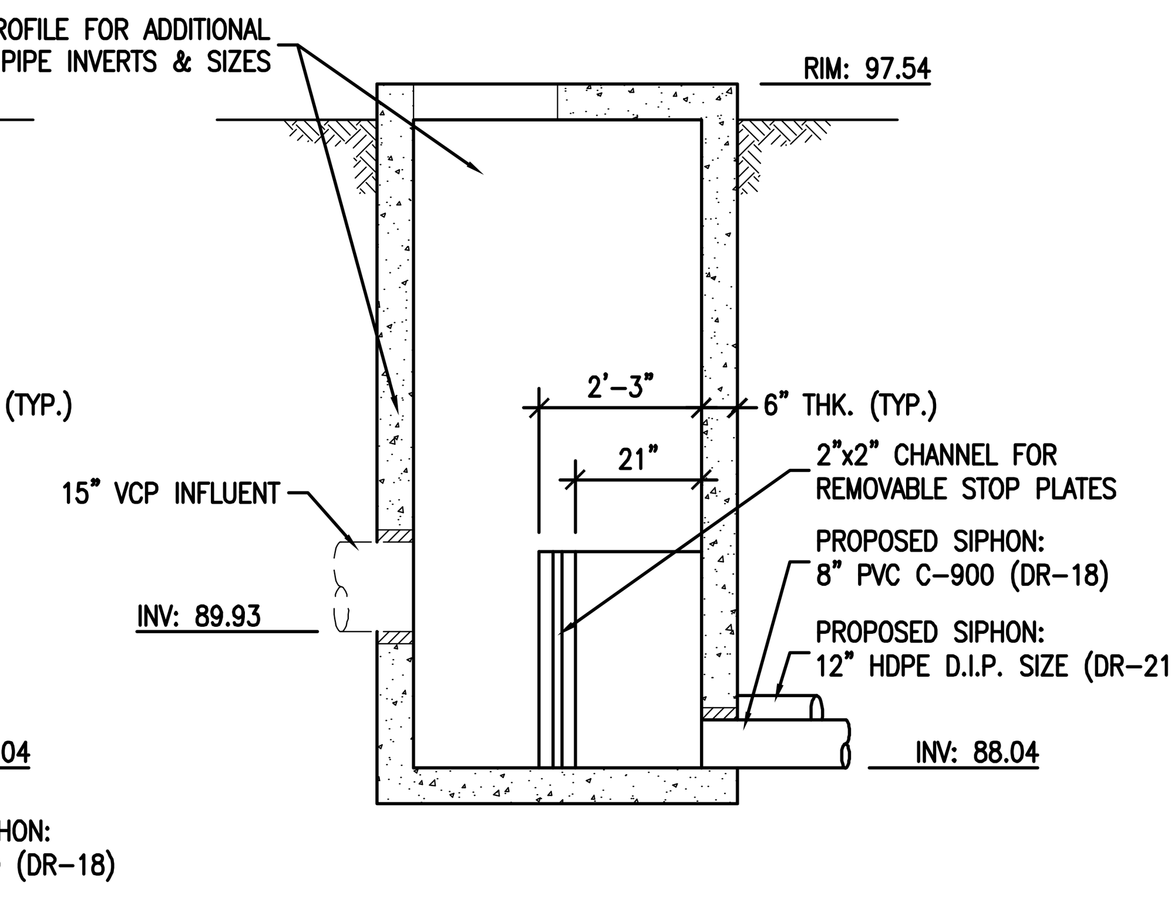


SECTION A-A



SECTION B-B

SITE 'B' - SIPHON DIVERSION STRUCTURE #B1

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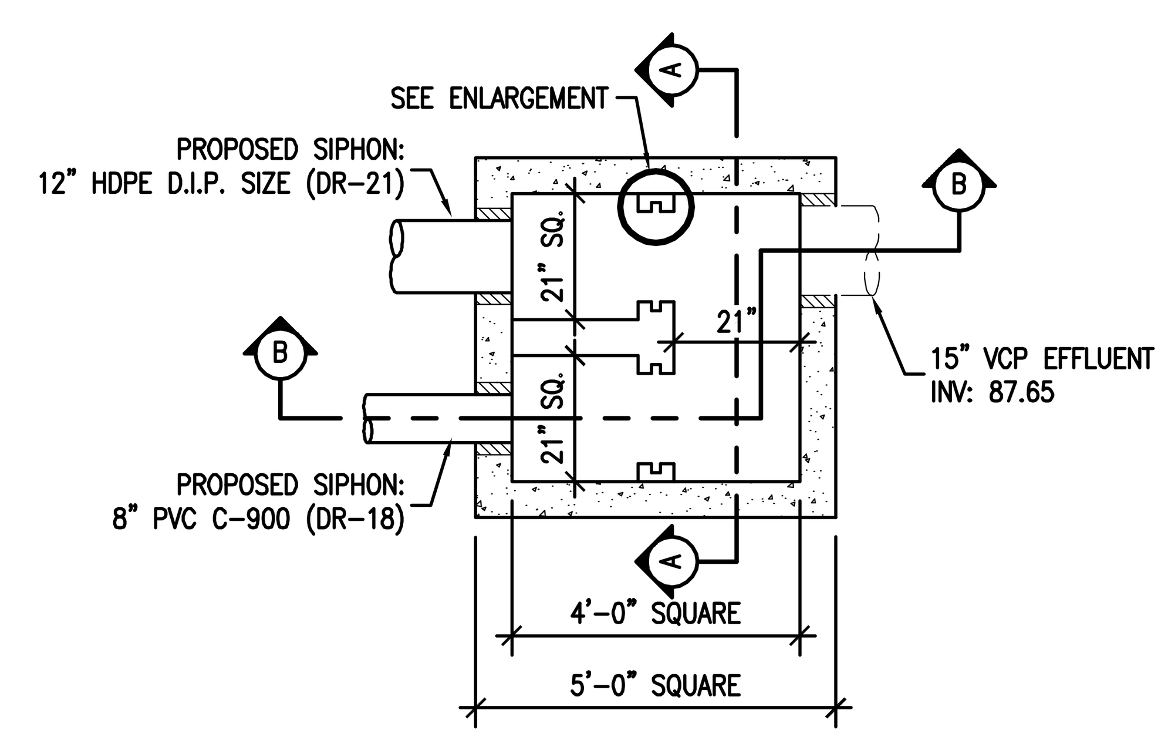
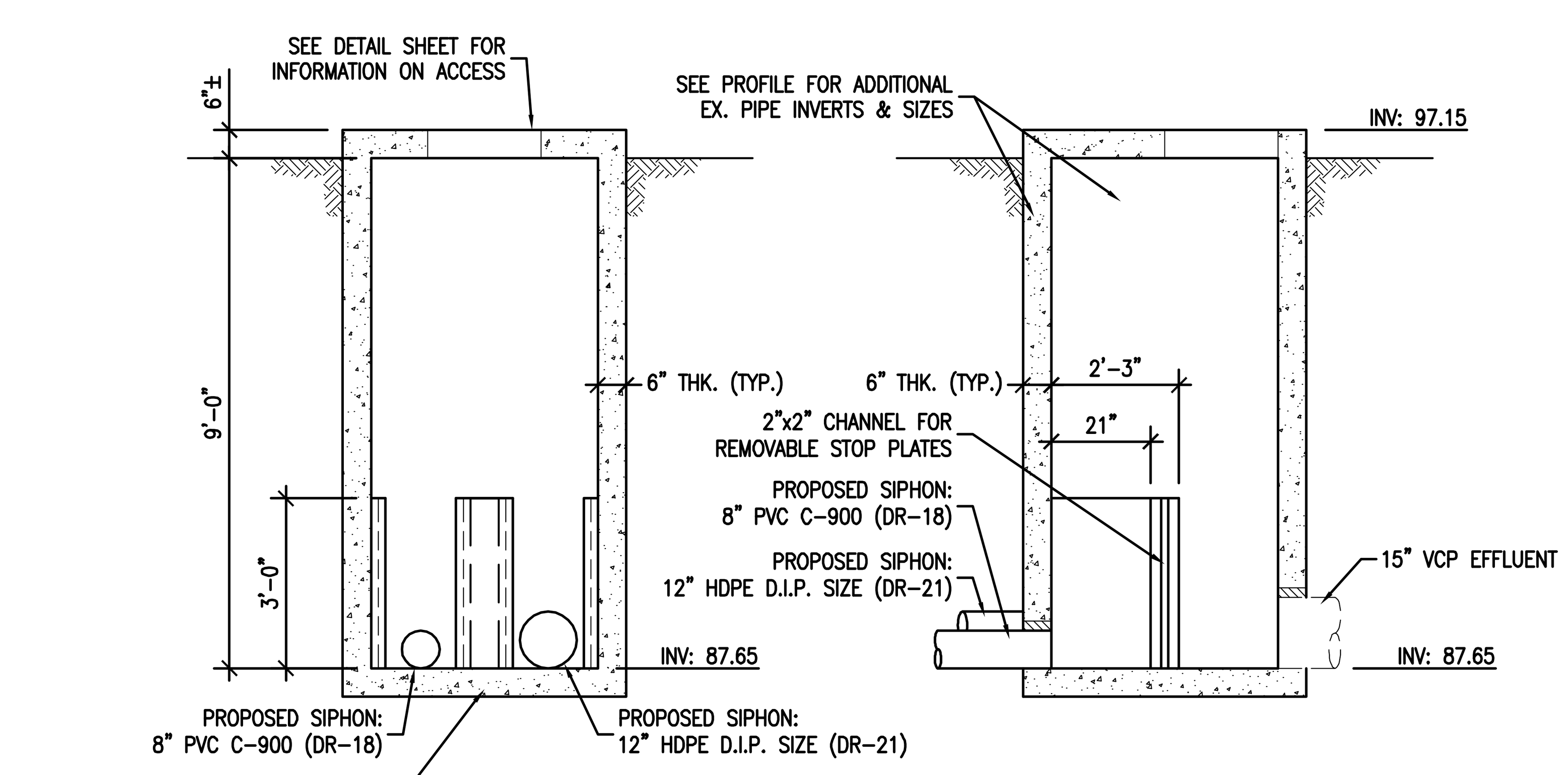


PLAN VIEW



SITE 'B' - SIPHON DIVERSION STRUCTURE #B2

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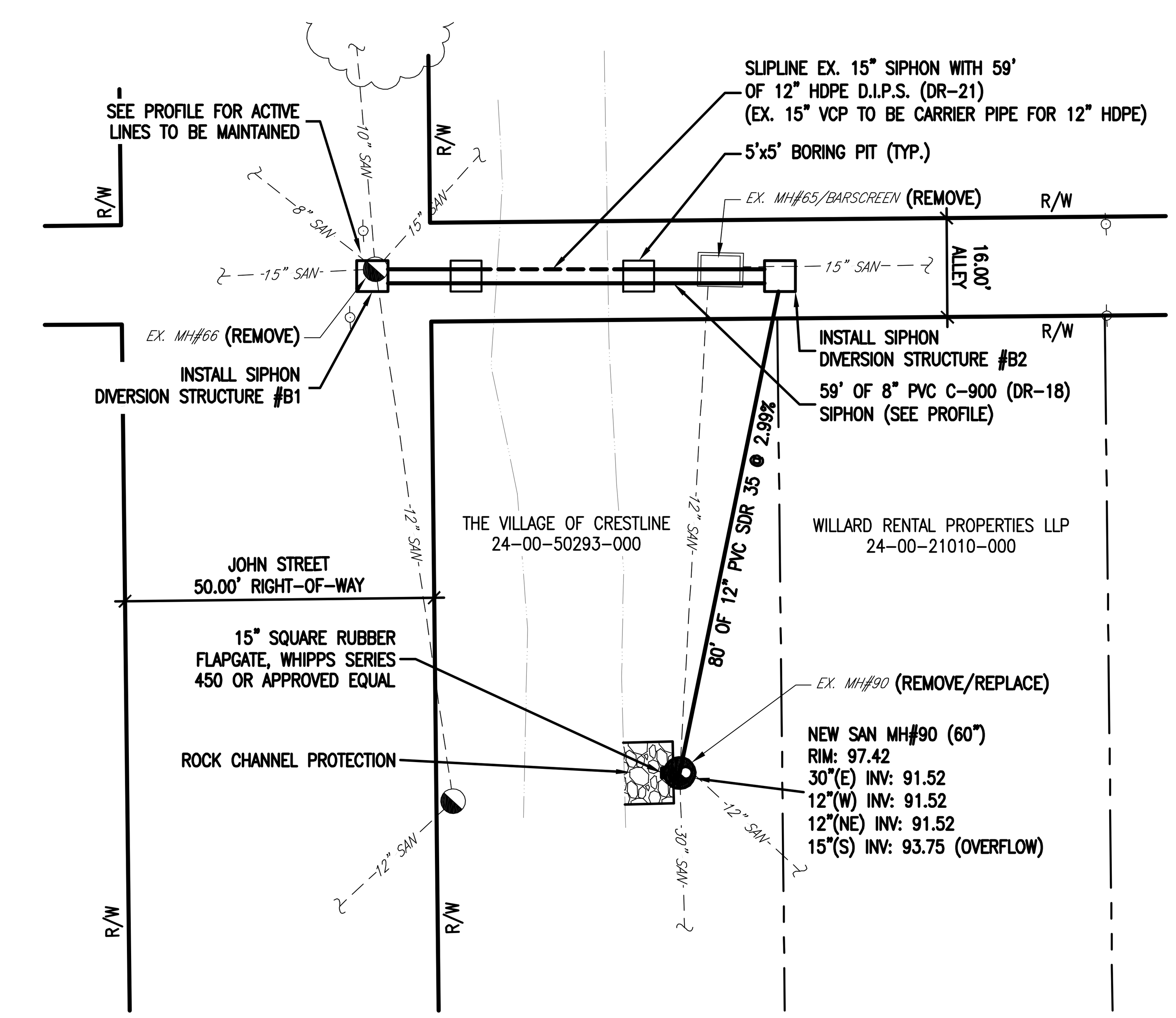
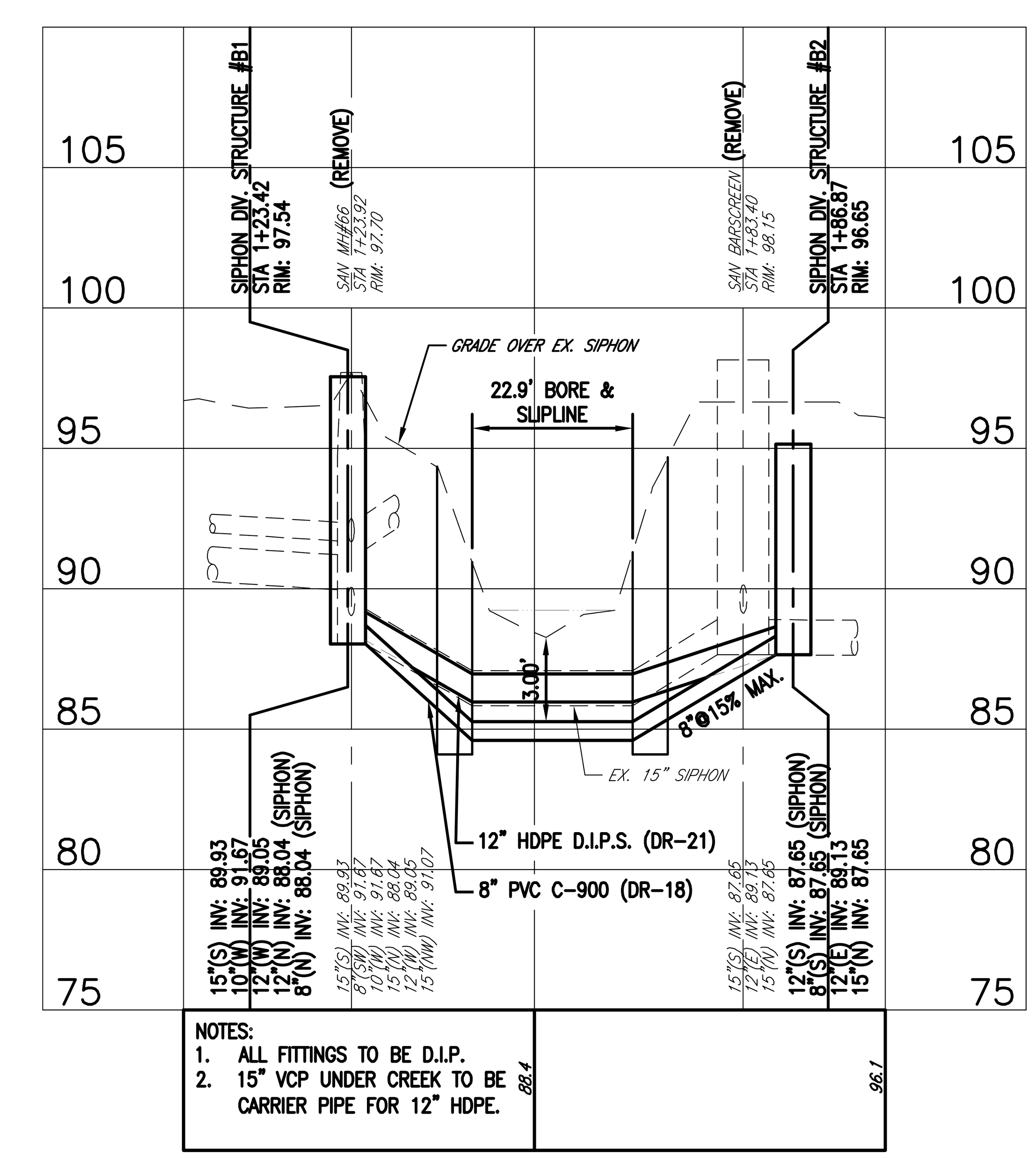


SITE 'B' - SITE PLAN

SCALE: 1"=20'



SITE 'B' - PROFILE

SCALE: 1"=20'

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SEWER SEPARATION IMPROVEMENTS PHASE I
SITE 'B' - PLAN & DETAILS

VILLAGE OF CRESTLINE

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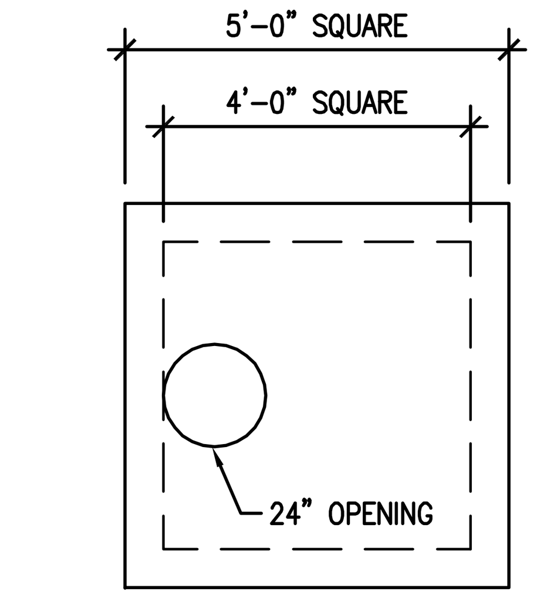
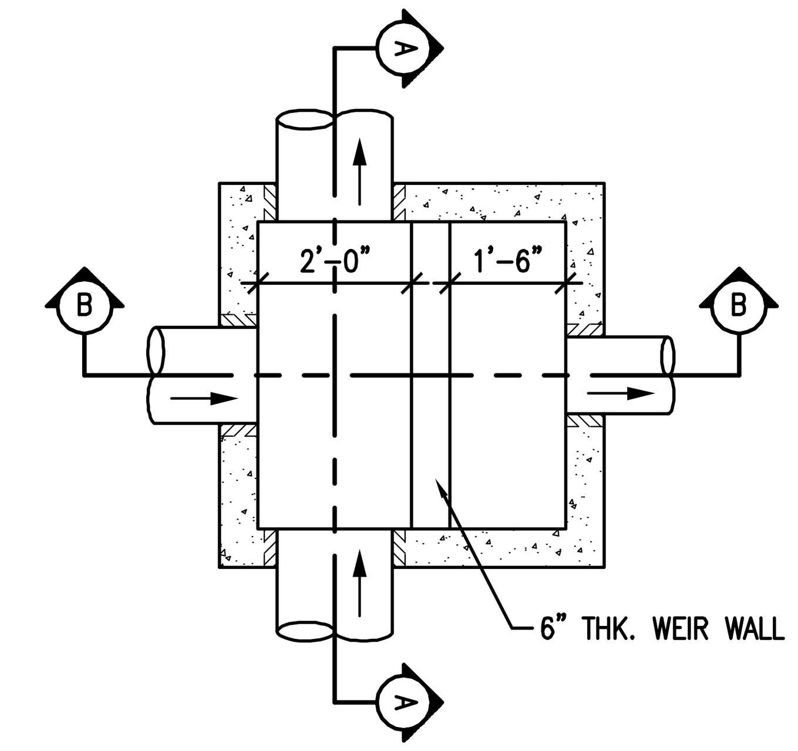
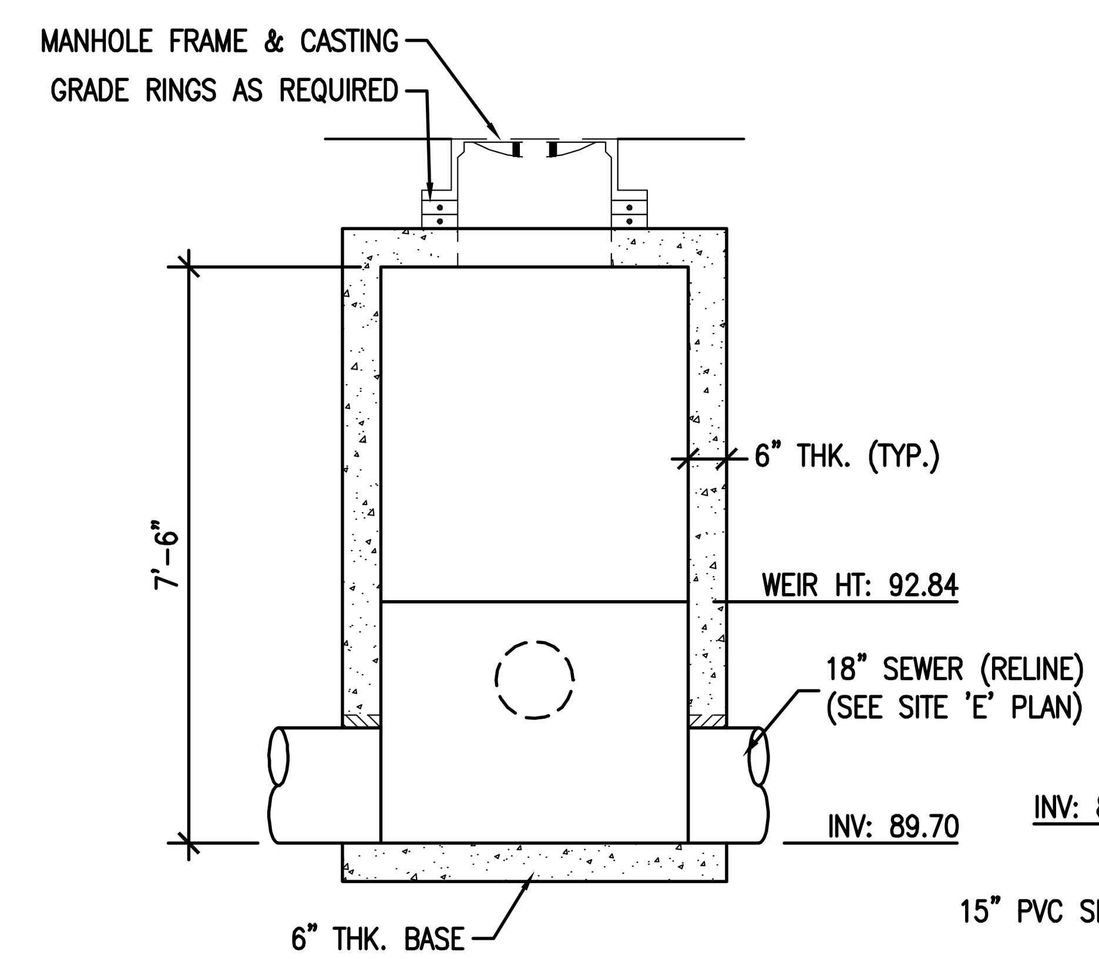


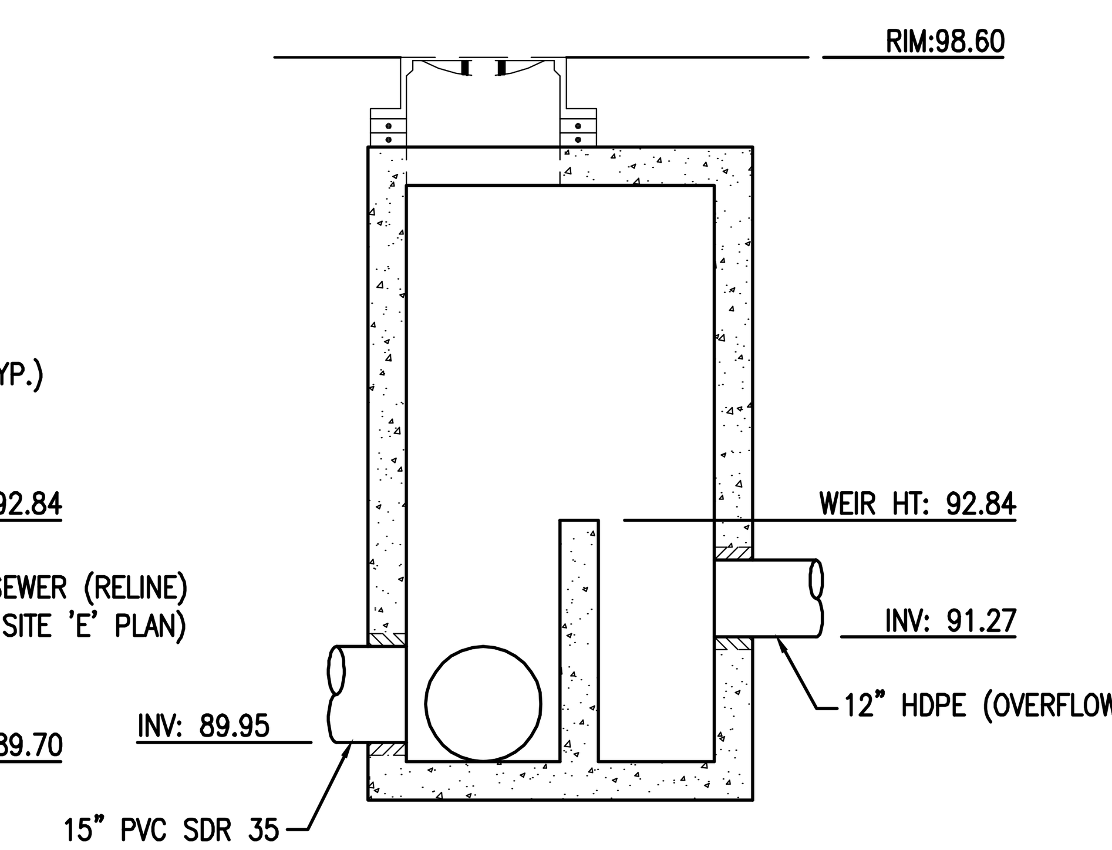
PLAN VIEW (TOP)



PLAN VIEW



SECTION A-A



SECTION B-B

SITE 'C' - SANITARY VAULT #C1
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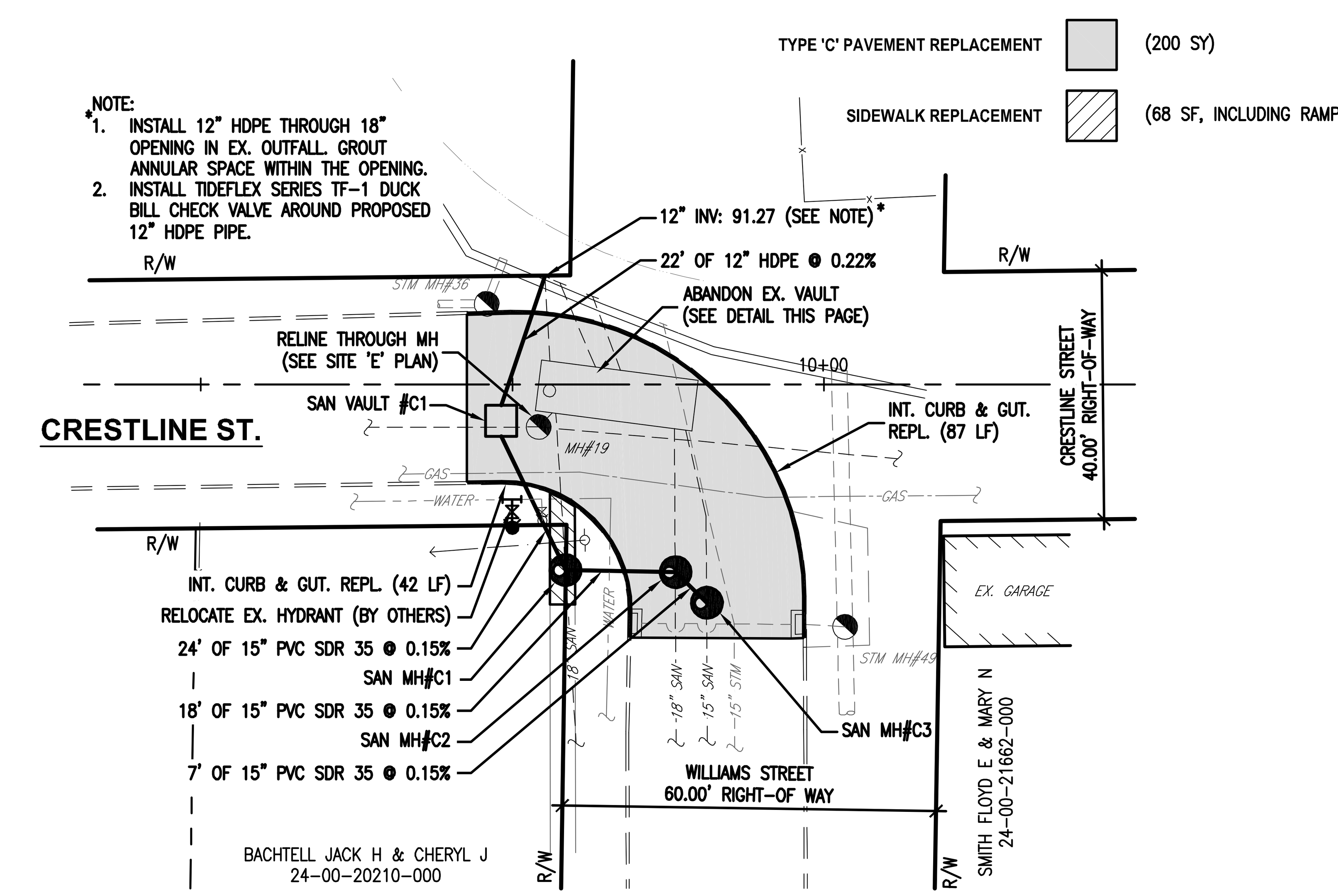
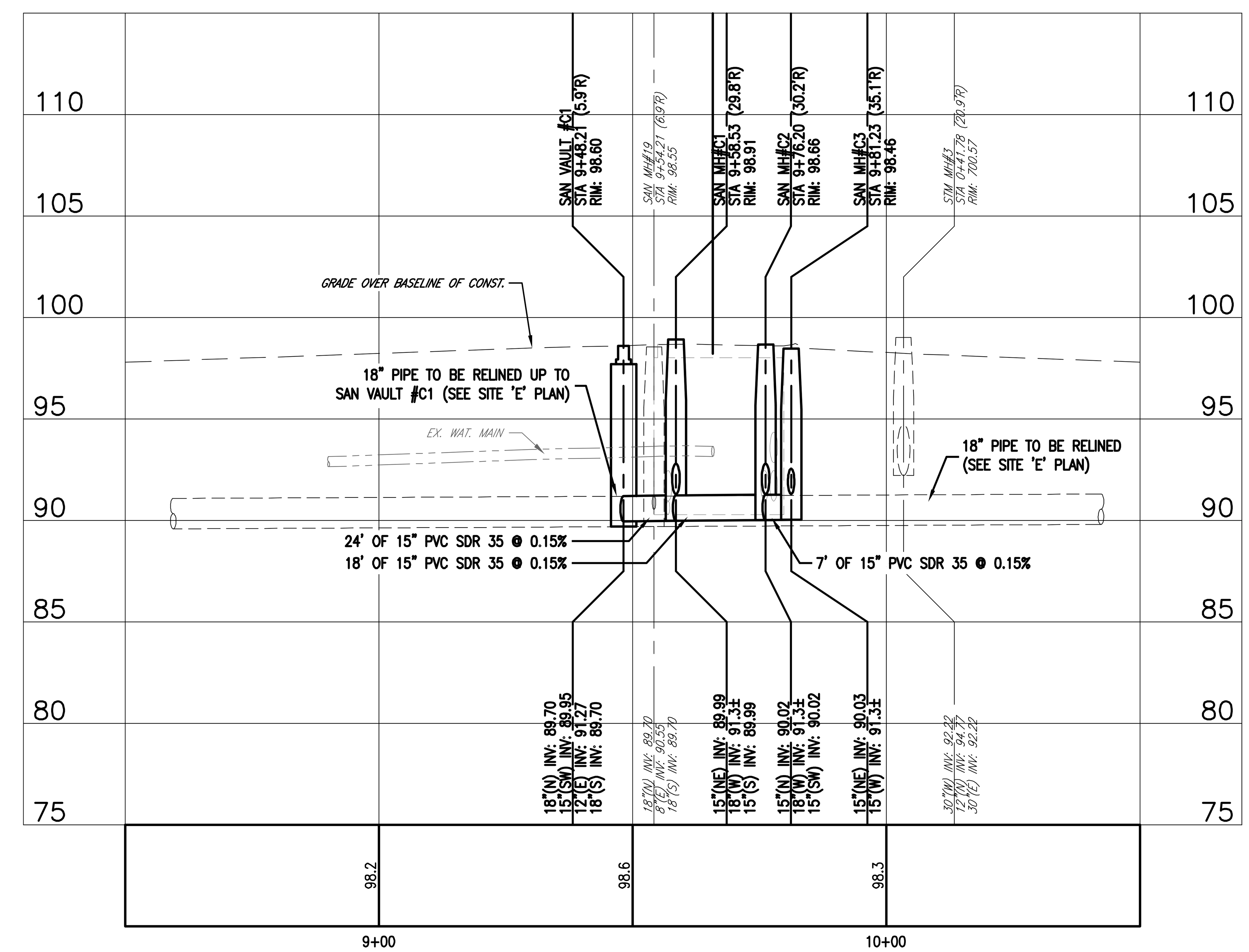


SITE 'C' - SITE PLAN
SCALE: 1"=20'



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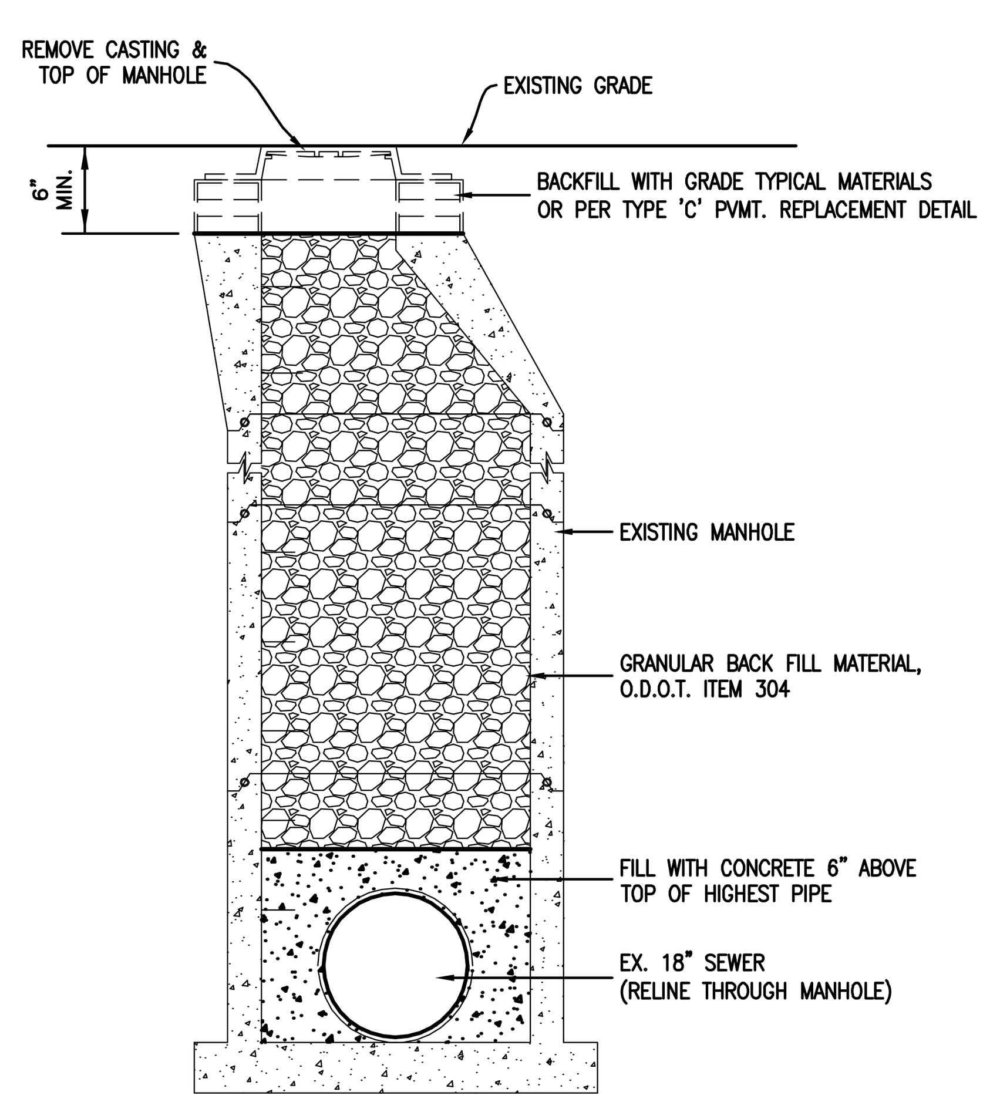

MANHOLE ABANDONMENT DETAIL
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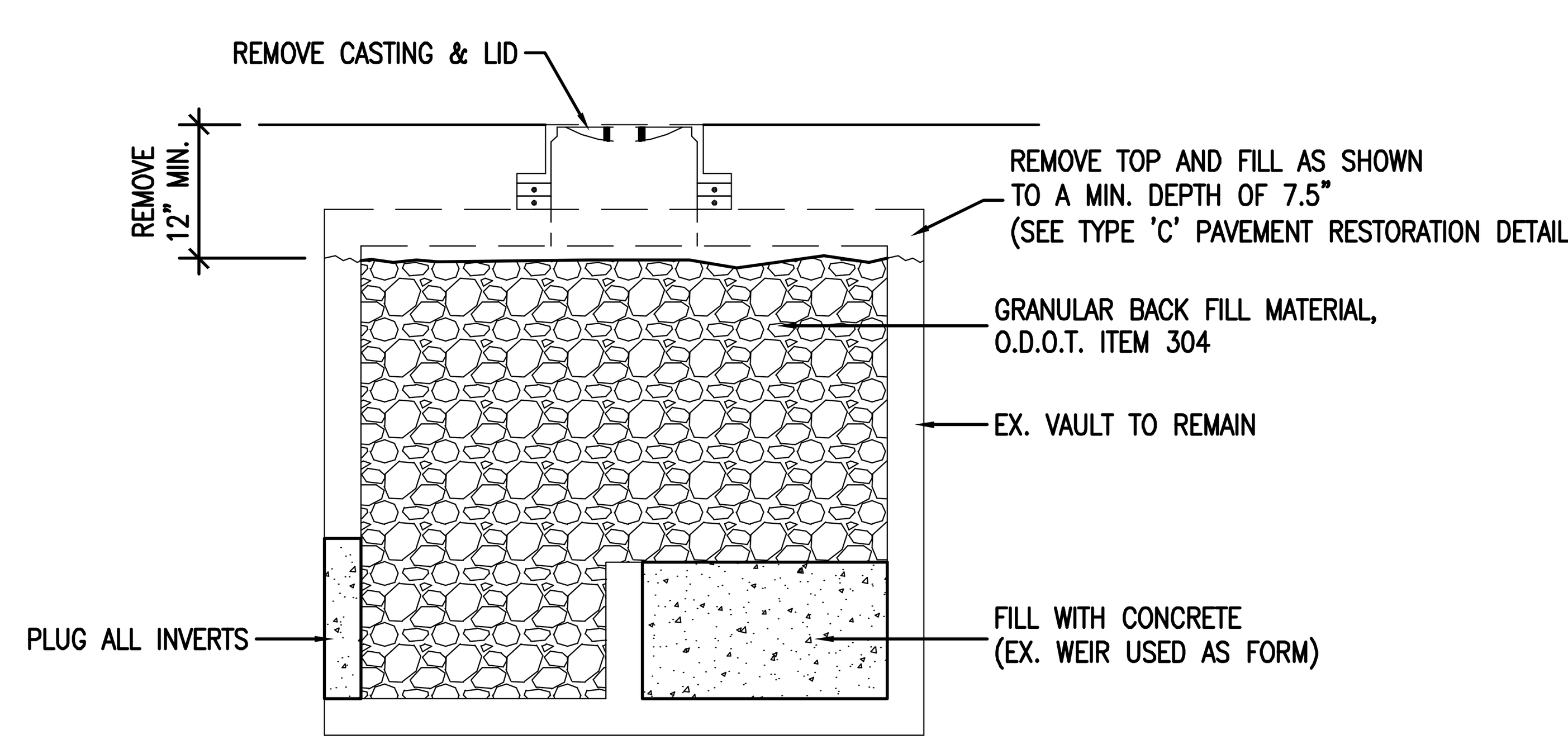

VAULT ABANDONMENT DETAIL
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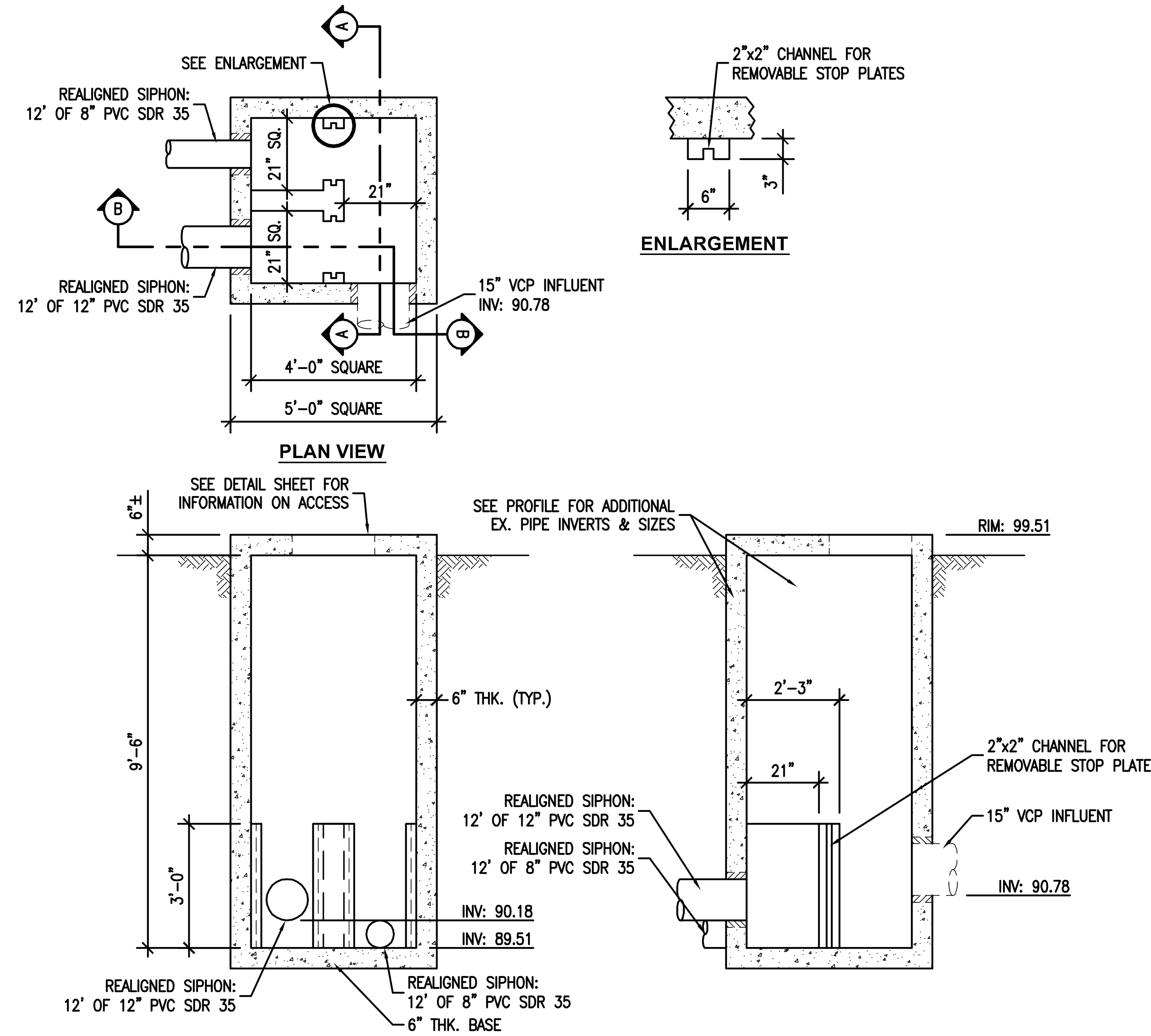
SEWER SEPARATION IMPROVEMENTS PHASE I
SITE 'C' - PLAN & DETAILS

VILLAGE OF CRESTLINE



SITE 'D' - SIPHON DIVERSION STRUCTURE #D1
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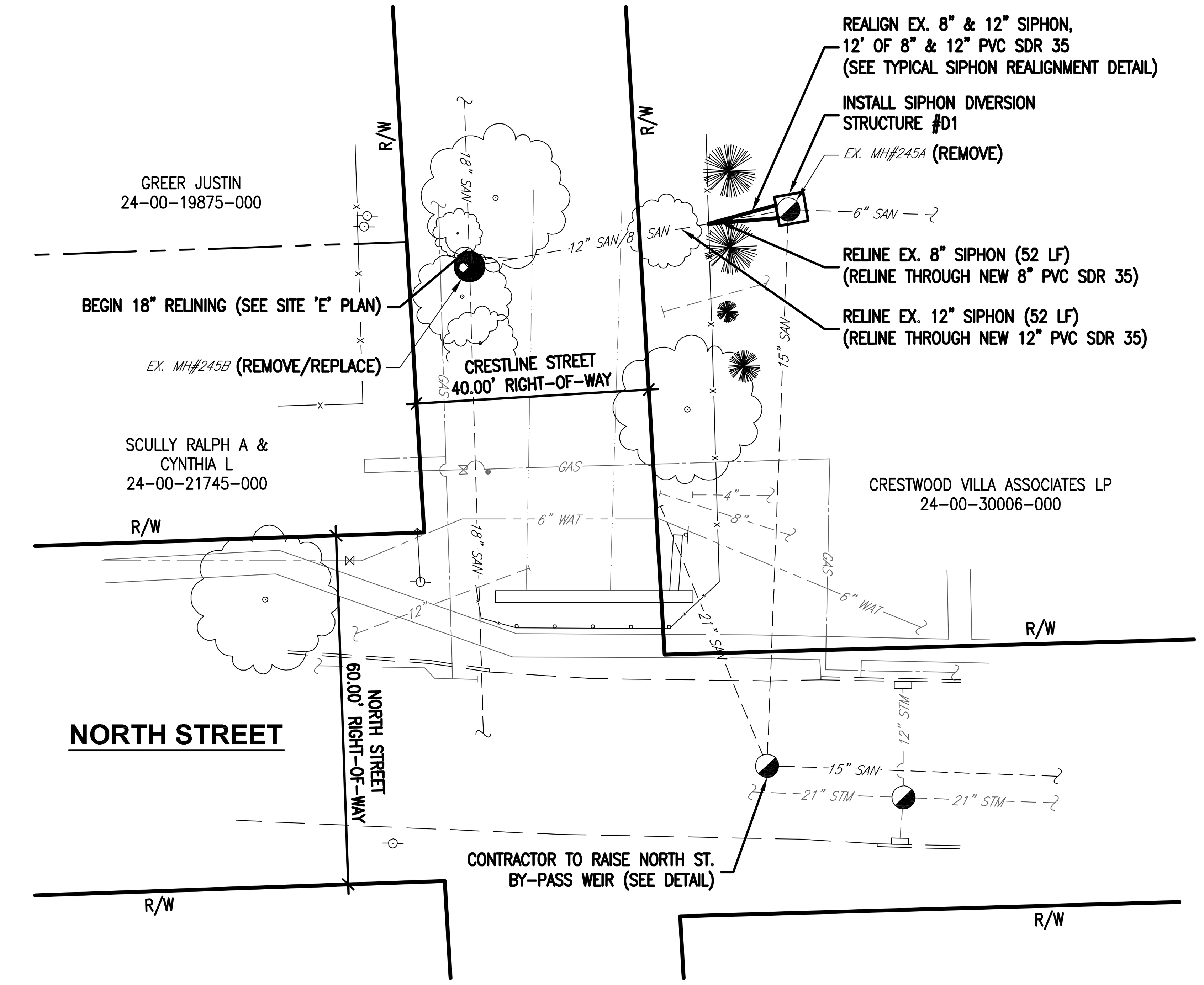
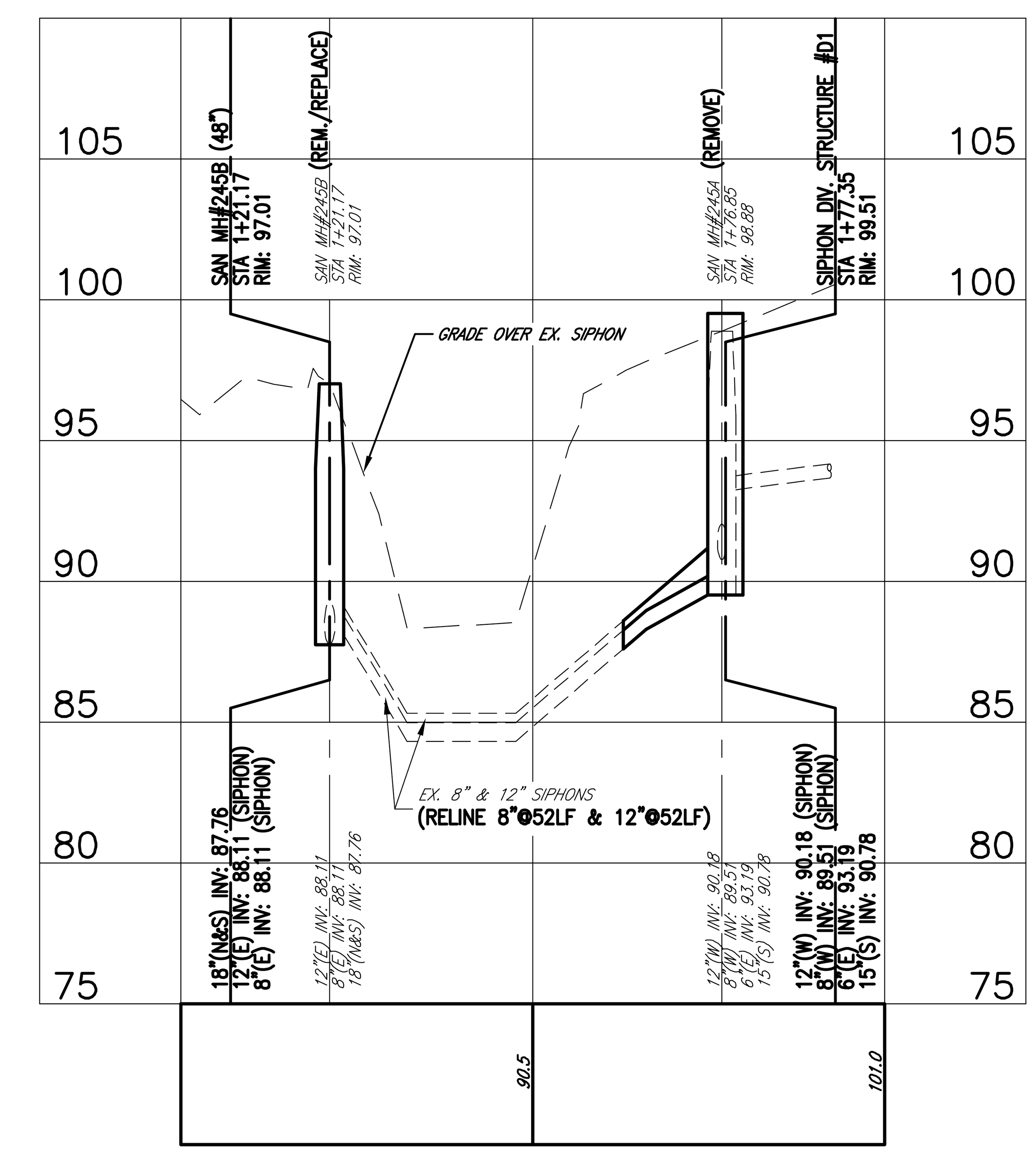


SITE 'D' - SITE PLAN
SCALE: 1"=20'



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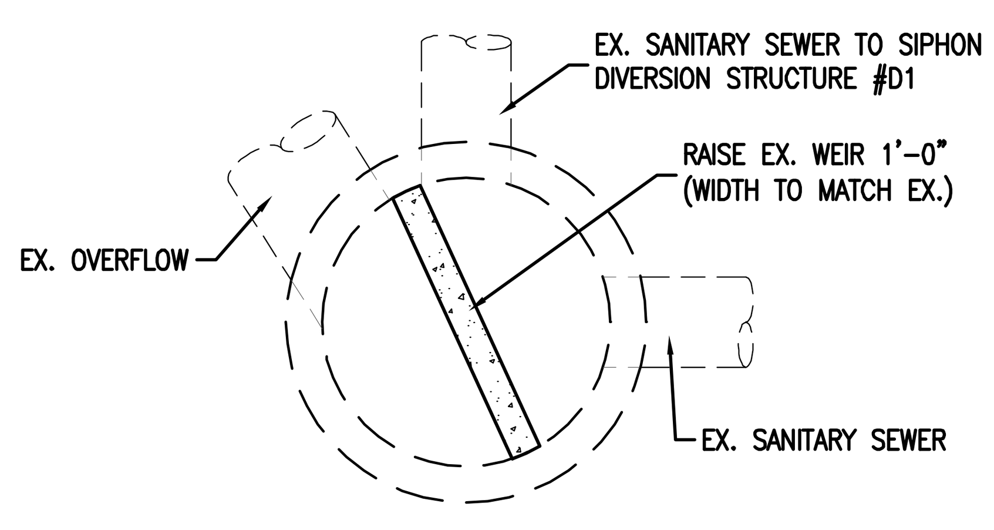

BY-PASS WEIR DETAIL
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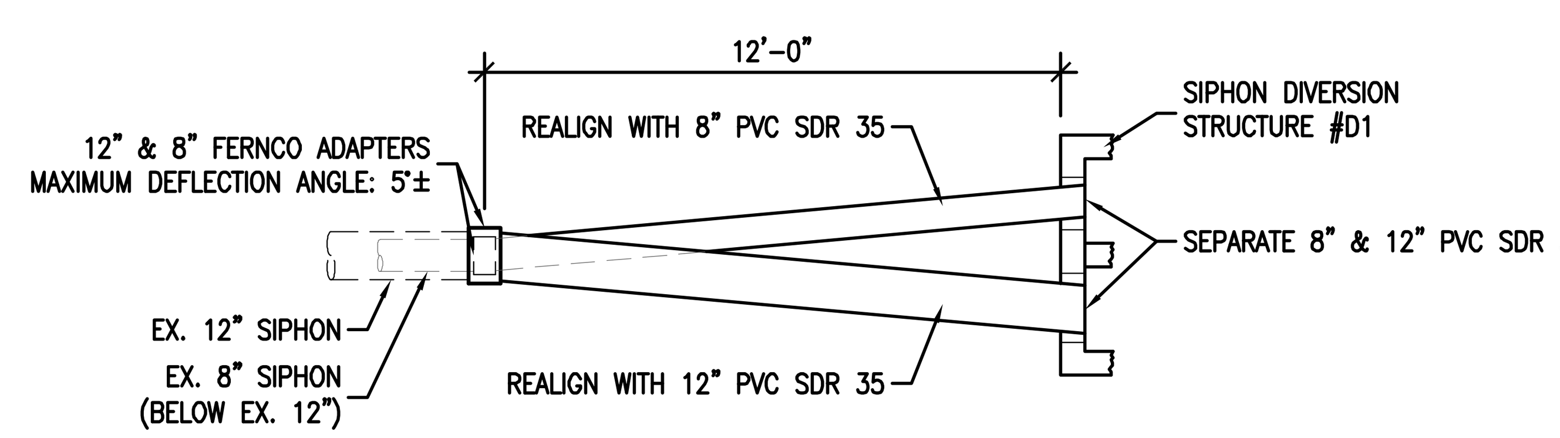

TYPICAL SIPHON REALIGNMENT DETAIL
NOT TO SCALE

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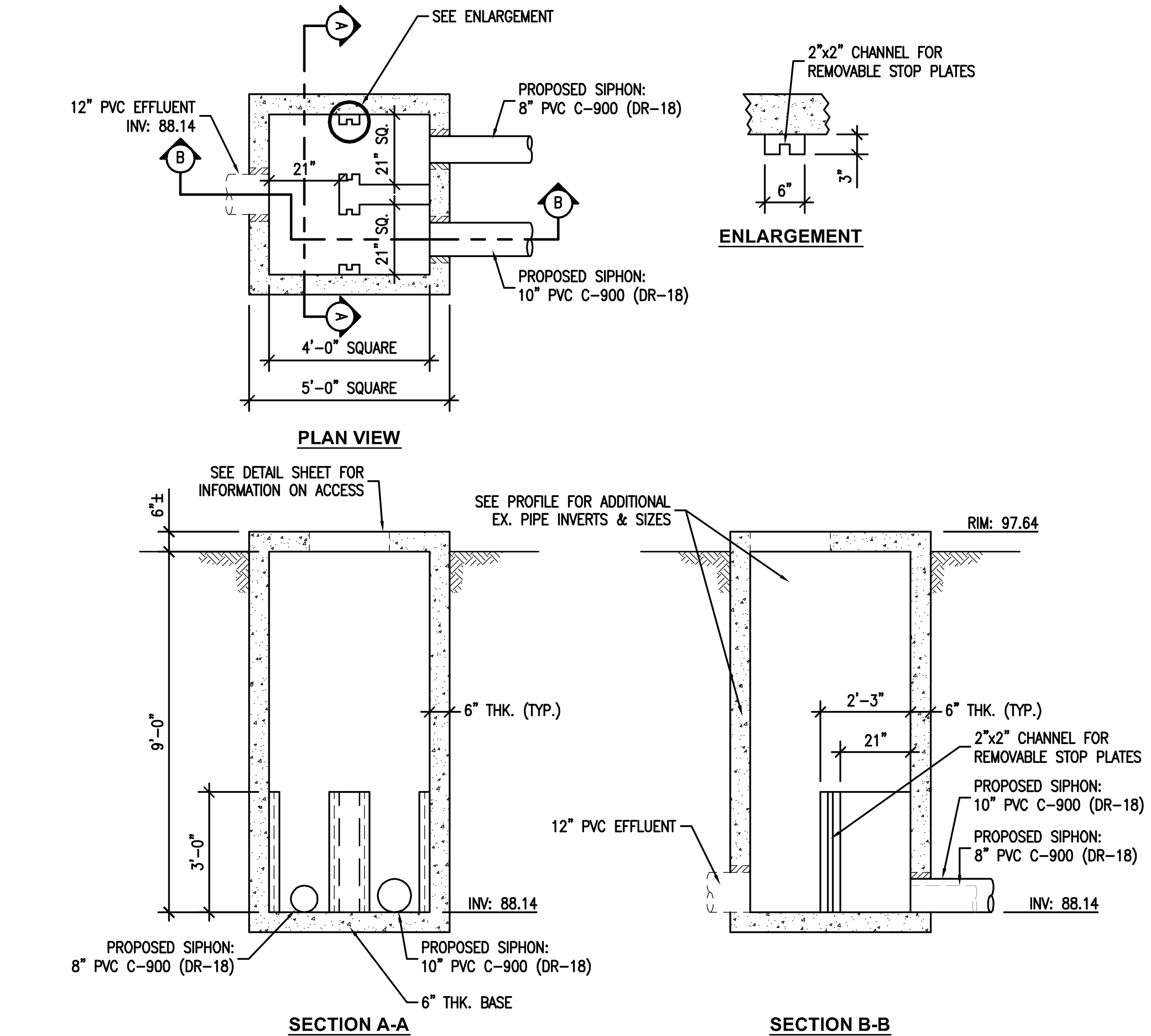
SEWER SEPARATION IMPROVEMENTS PHASE I
SITE 'D' - PLAN & DETAILS

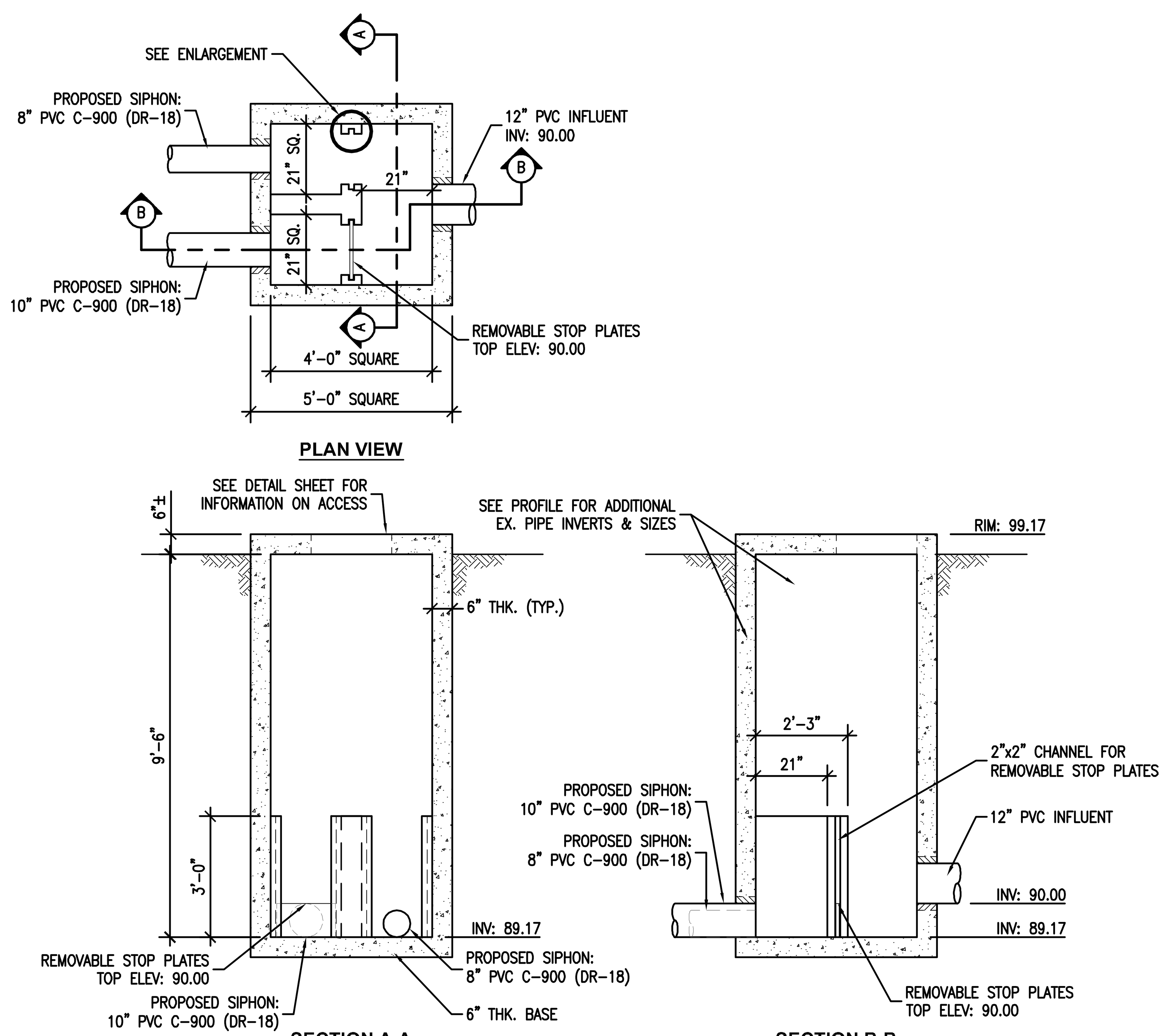
VILLAGE OF CRESTLINE

5
11



SITE 'G' - SIPHON DIVERSION STRUCTURE #G1

SCALE: 3/8" = 1'-0"



SITE 'G' - SIPHON DIVERSION STRUCTURE #G2

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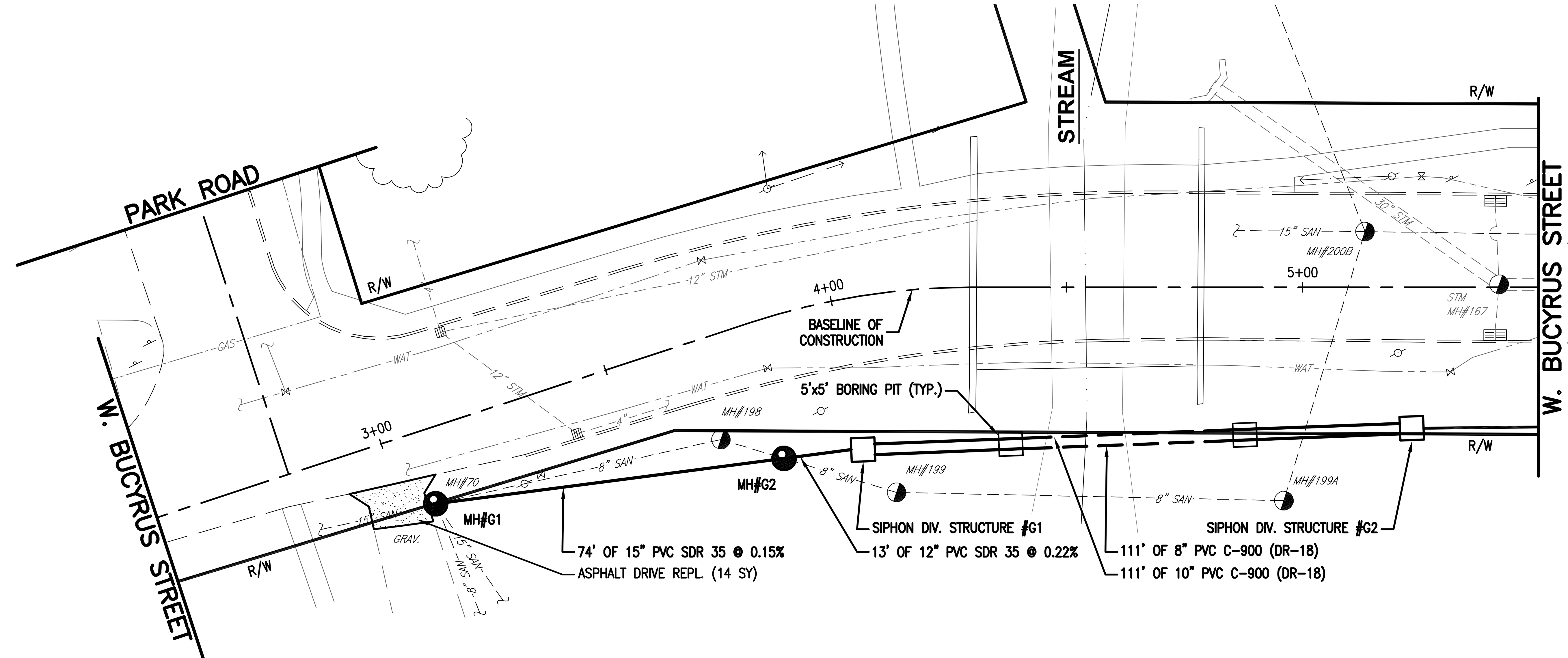
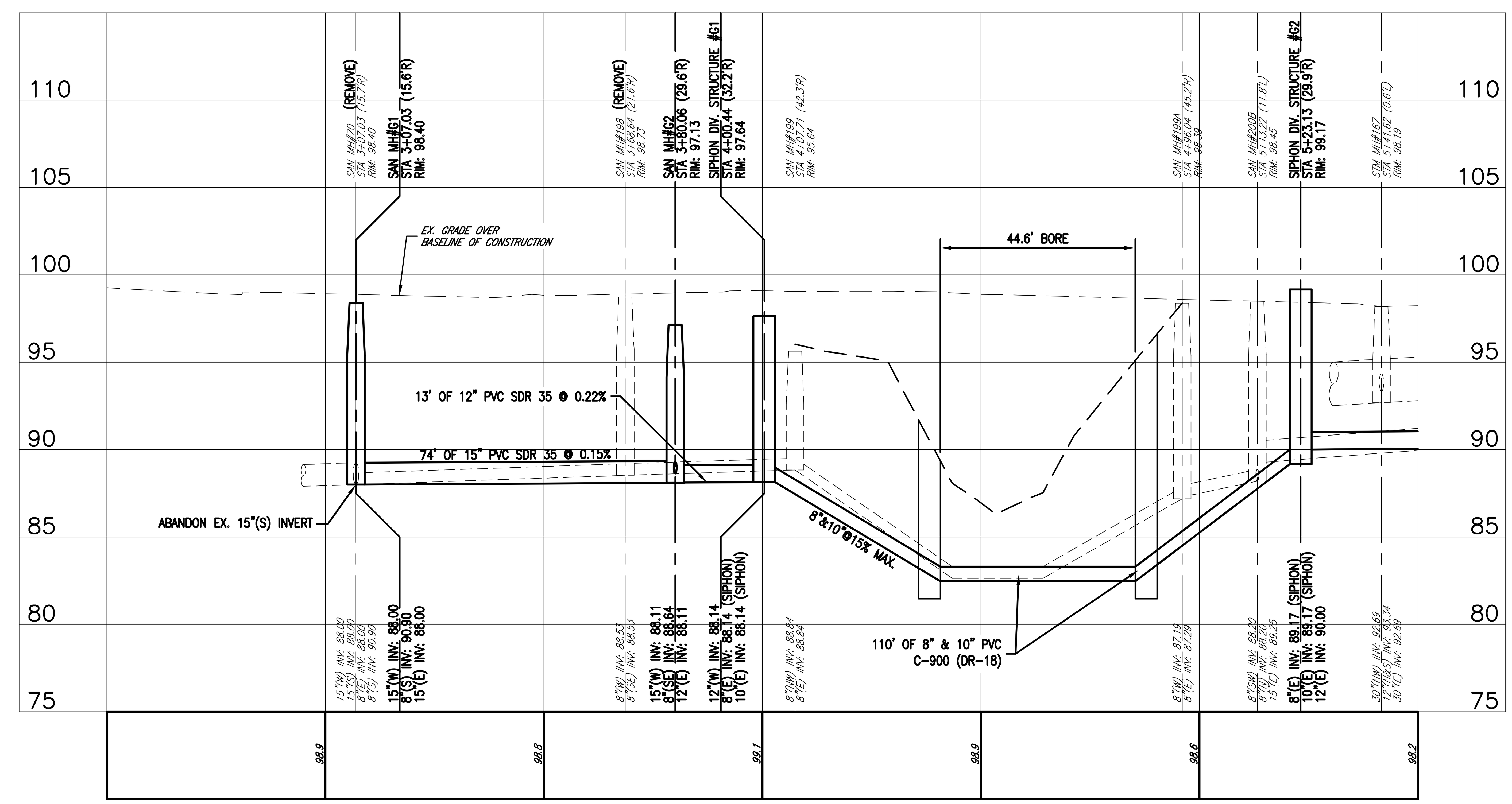


WEST BUCYRUS STREET (SITE 'G')

SCALE: 1"=20'



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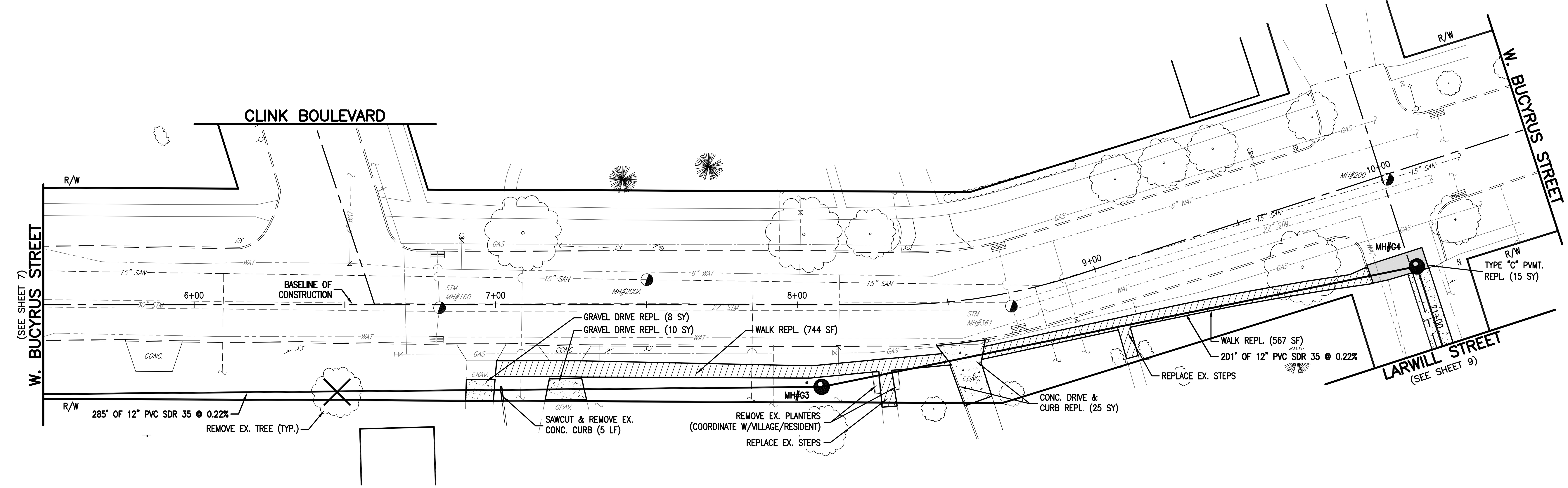
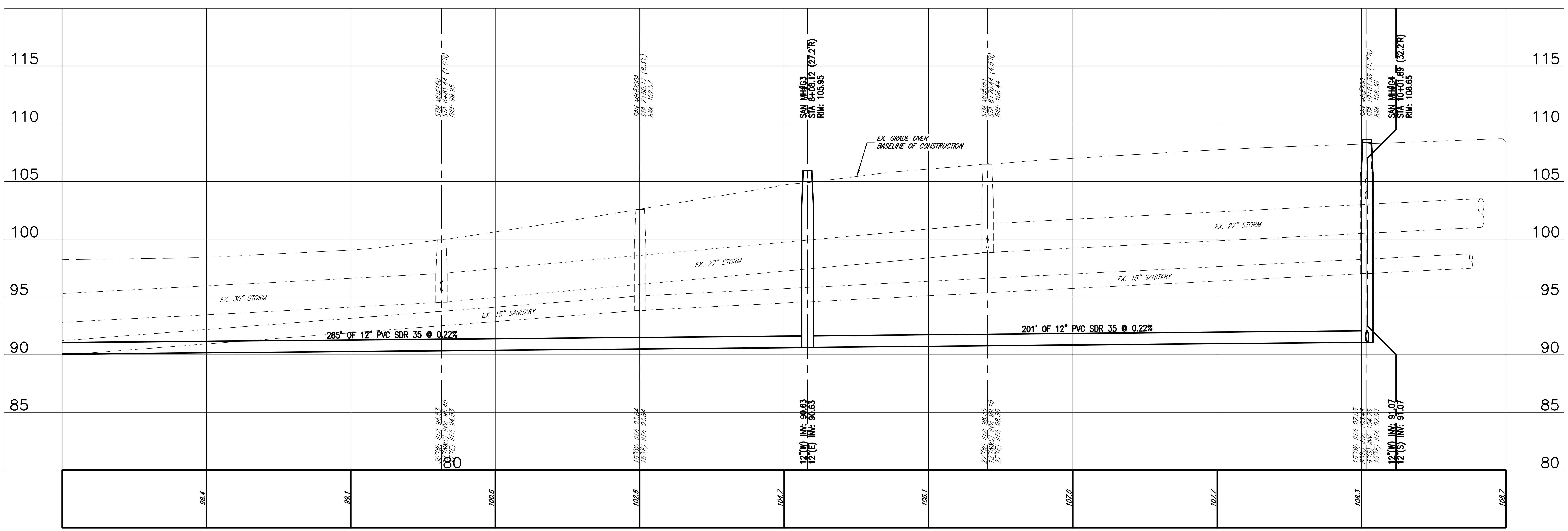
SEWER SEPARATION IMPROVEMENTS PHASE I
SITE 'G' - PLAN & PROFILE

VILLAGE OF CRESTLINE



WEST BUCYRUS STREET (SITE 'G')

SCALE: 1"=20'



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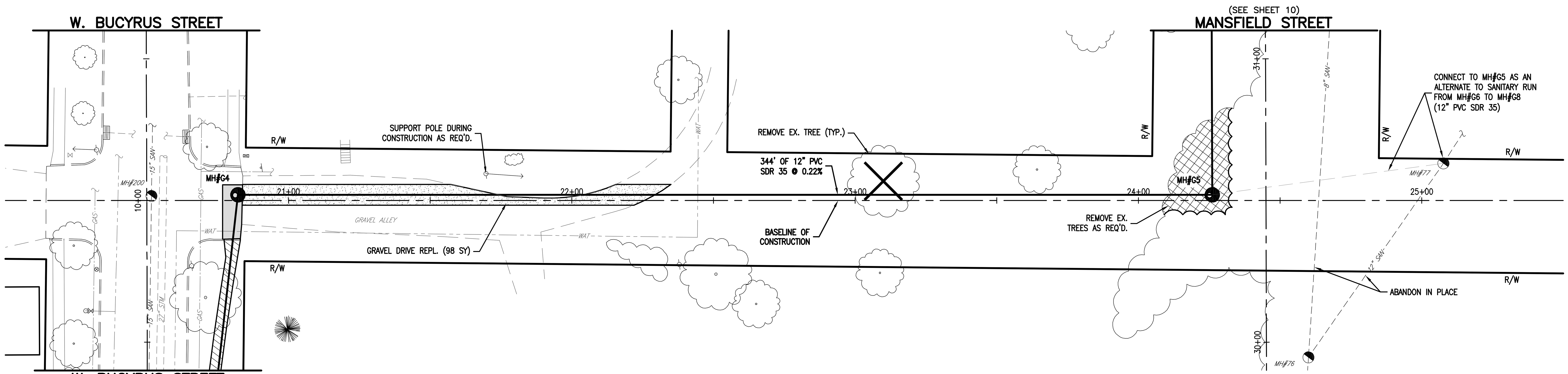
SITE 'G' - PLAN & PROFILE

VILLAGE OF CRESTLINE

7 / 11



LARWILL STREET (SITE 'G')
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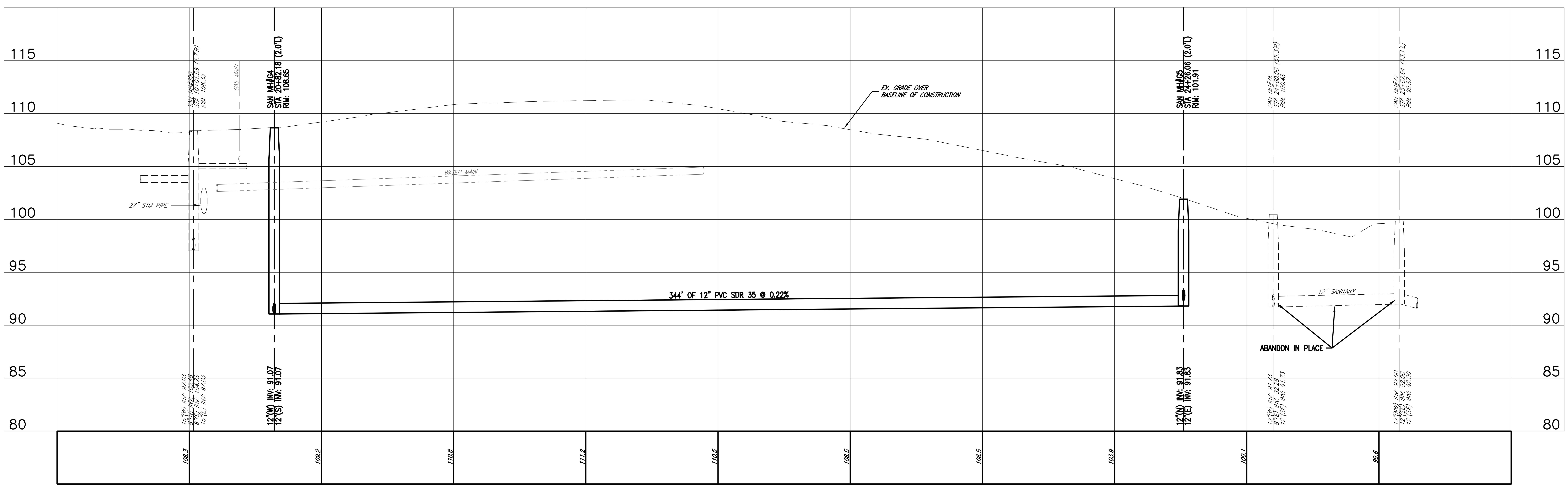

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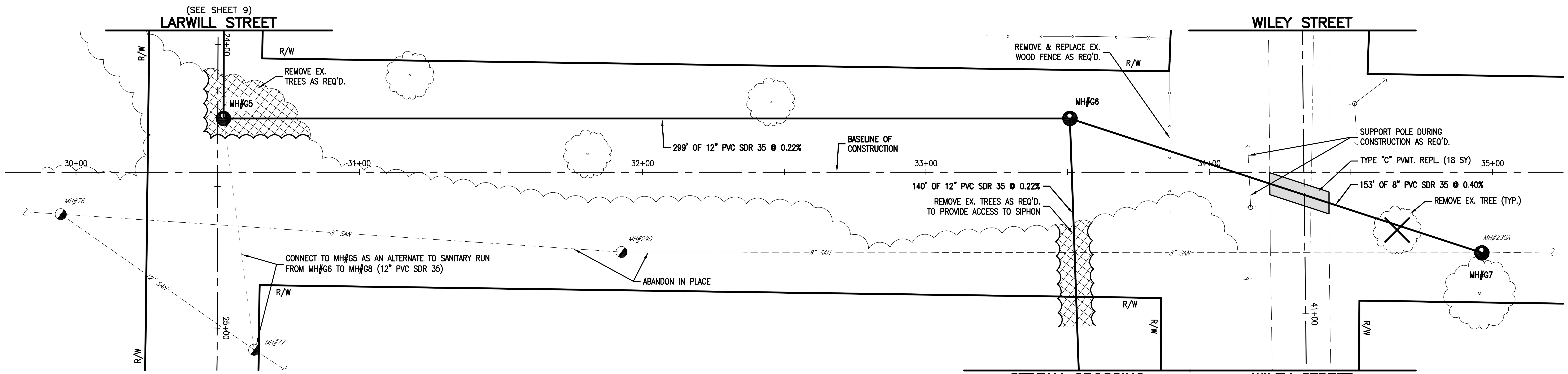
SEWER SEPARATION IMPROVEMENTS PHASE I
SITE 'G' - PLAN & PROFILE

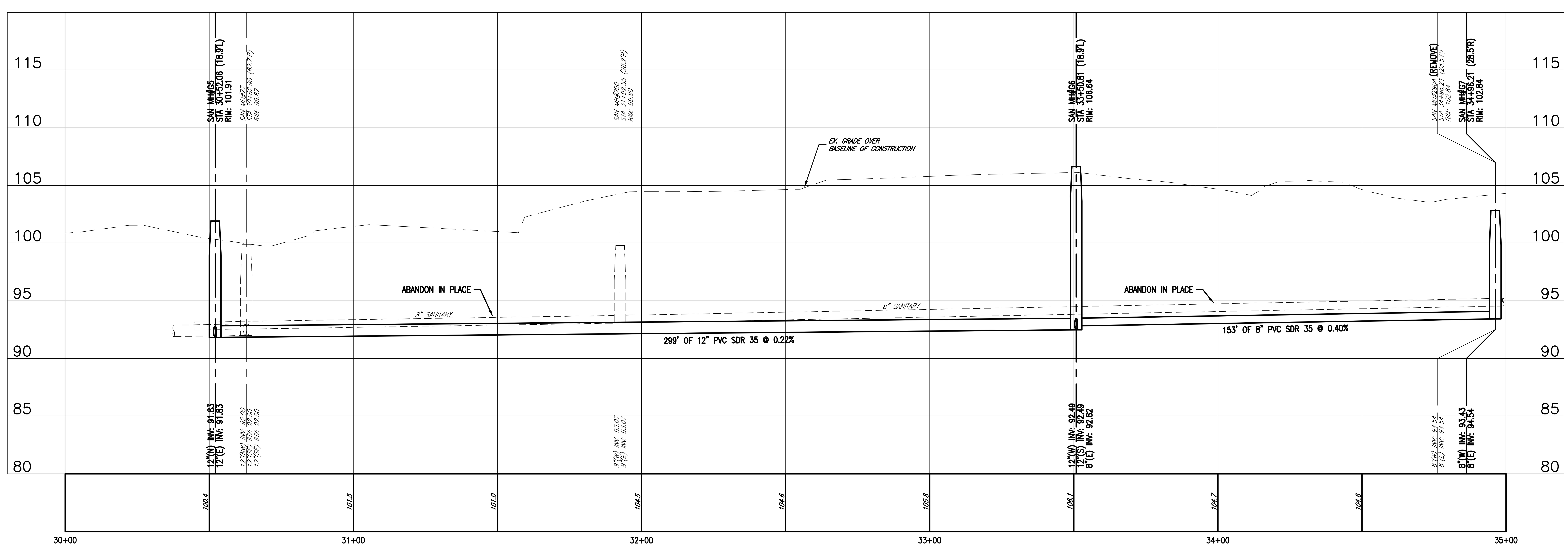
VILLAGE OF CRESTLINE

8 / 11



MANSFIELD STREET (SITE 'G')

SCALE: 1"=20'



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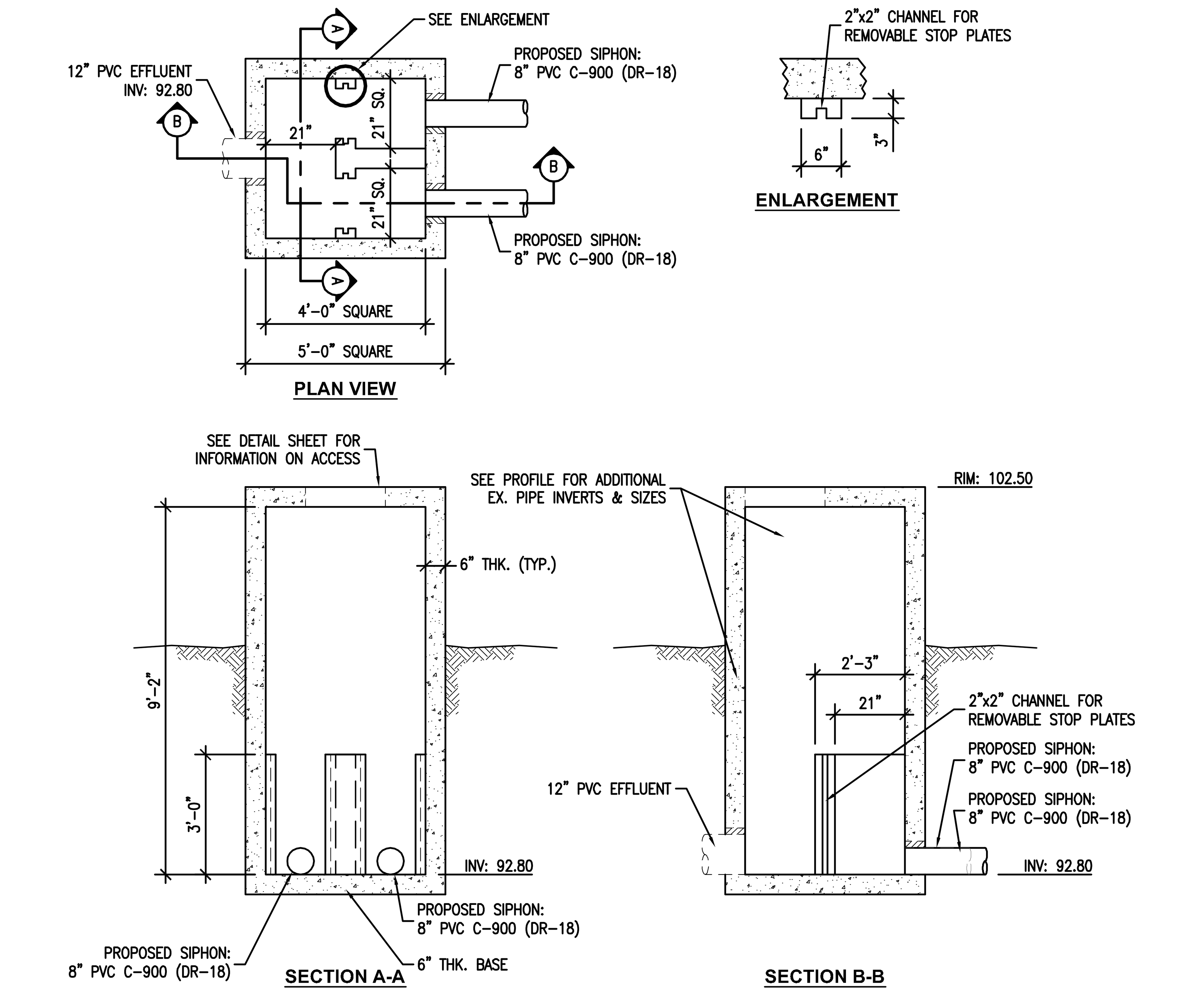
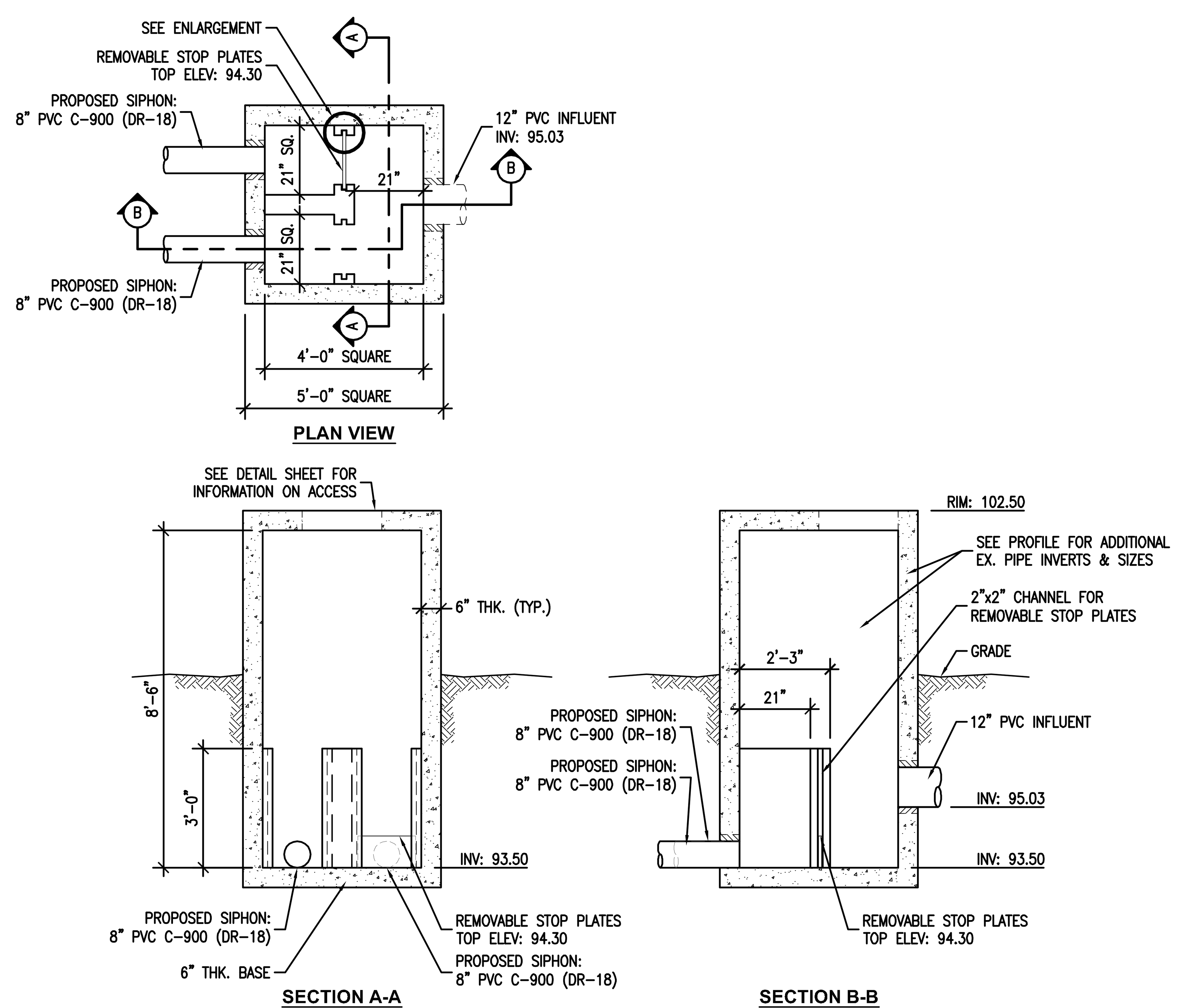
9 / 11



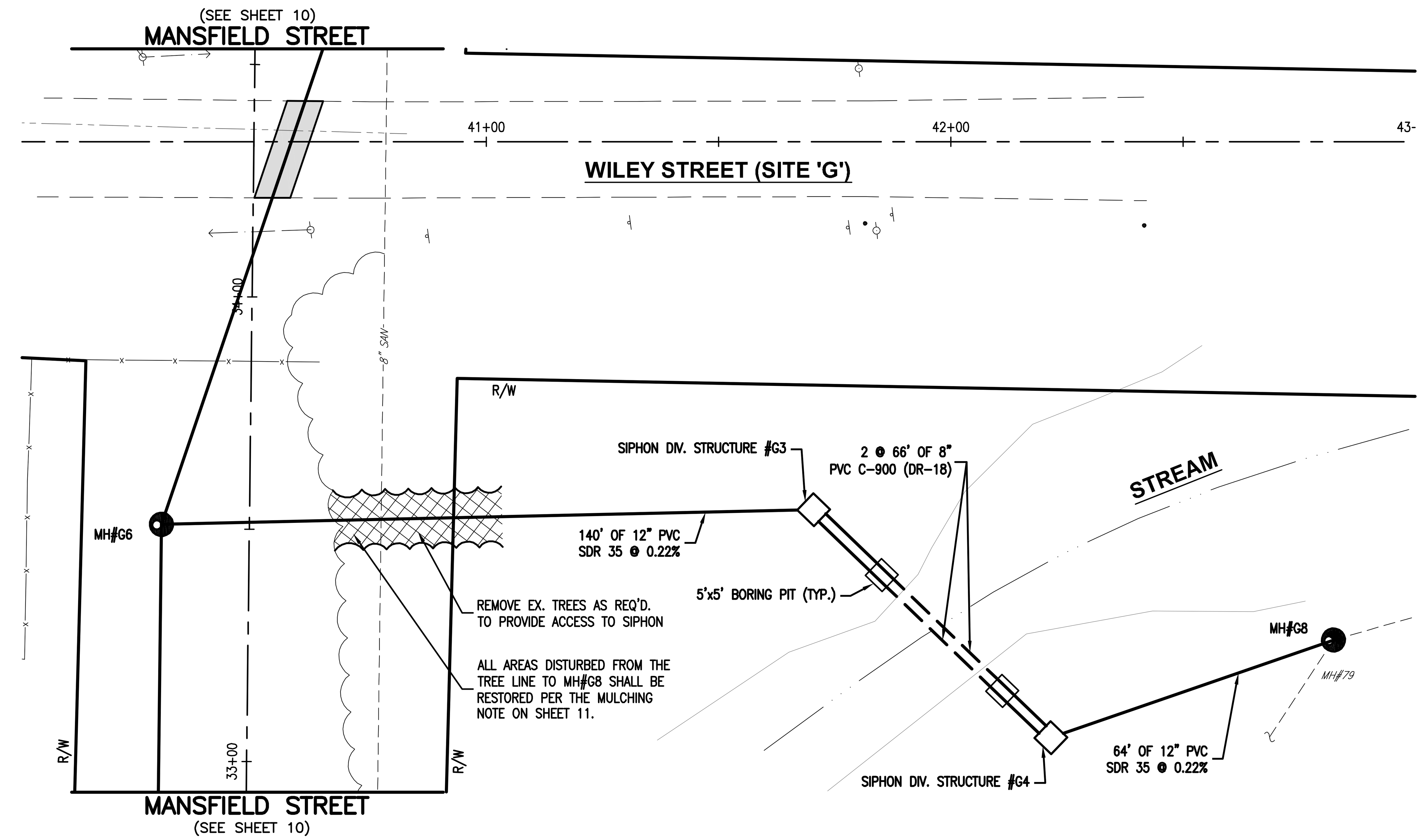
SITE 'G' - SIPHON DIVERSION STRUCTURE #G3

SCALE: 3/8" = 1'-0"



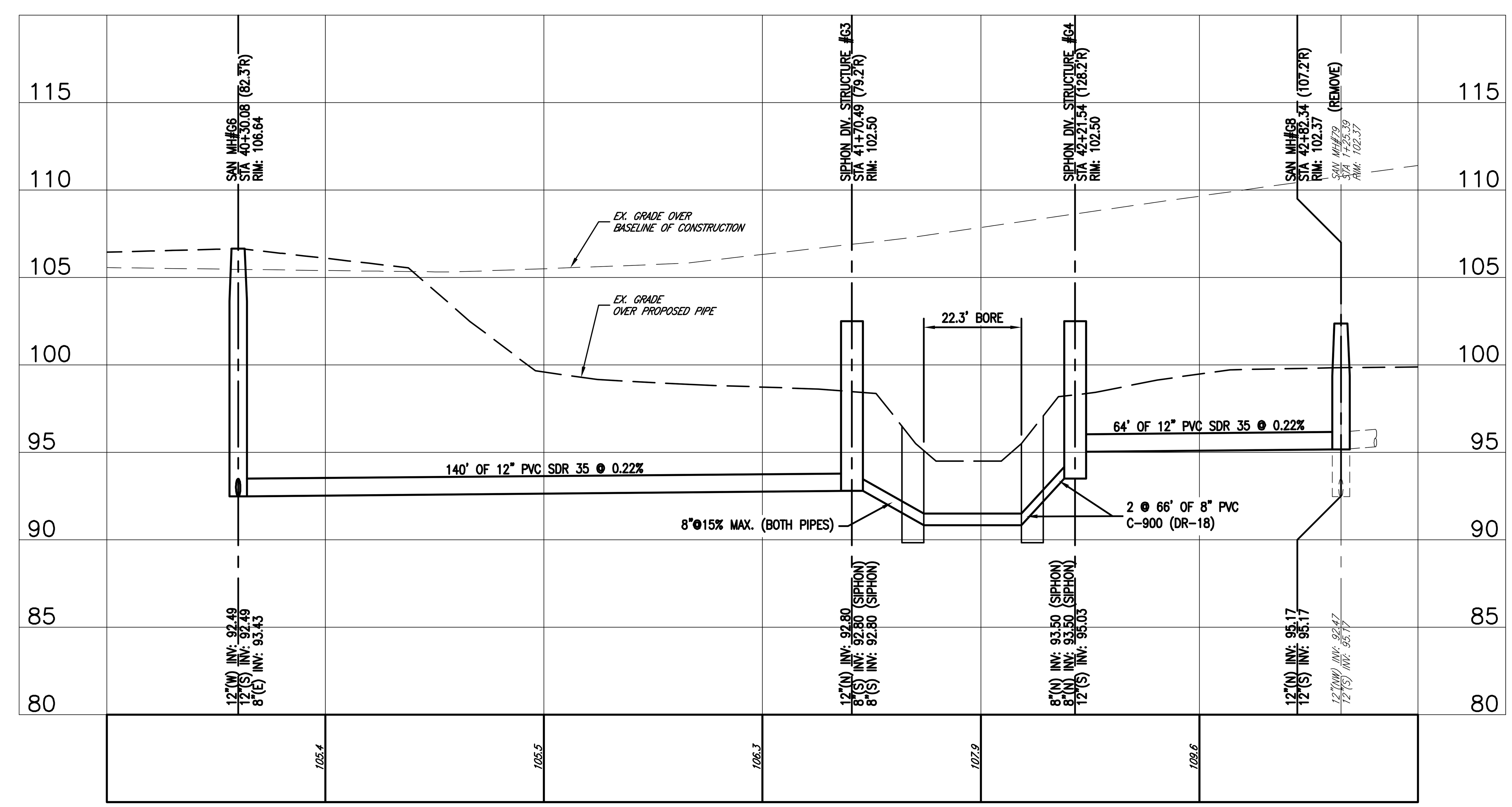
SITE 'G' - SIPHON DIVERSION STRUCTURE #G4

SCALE: 3/8" = 1'-0"



RAILROAD PROPERTY (SITE 'G')

SCALE: 1"=20'



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SEWER SEPARATION IMPROVEMENTS PHASE I
SITE 'G' - PLAN & PROFILE

VILLAGE OF CRESTLINE

10
11

MULCHING NOTES (DISTURBED AREAS)

Description

Applying a protective layer of mulch, usually of straw, to bare soil is used to abate erosion by shielding it from raindrop impact to helping establish vegetation by conserving moisture and creating favorable conditions for seeds to germinate.

Specifications for Mulching

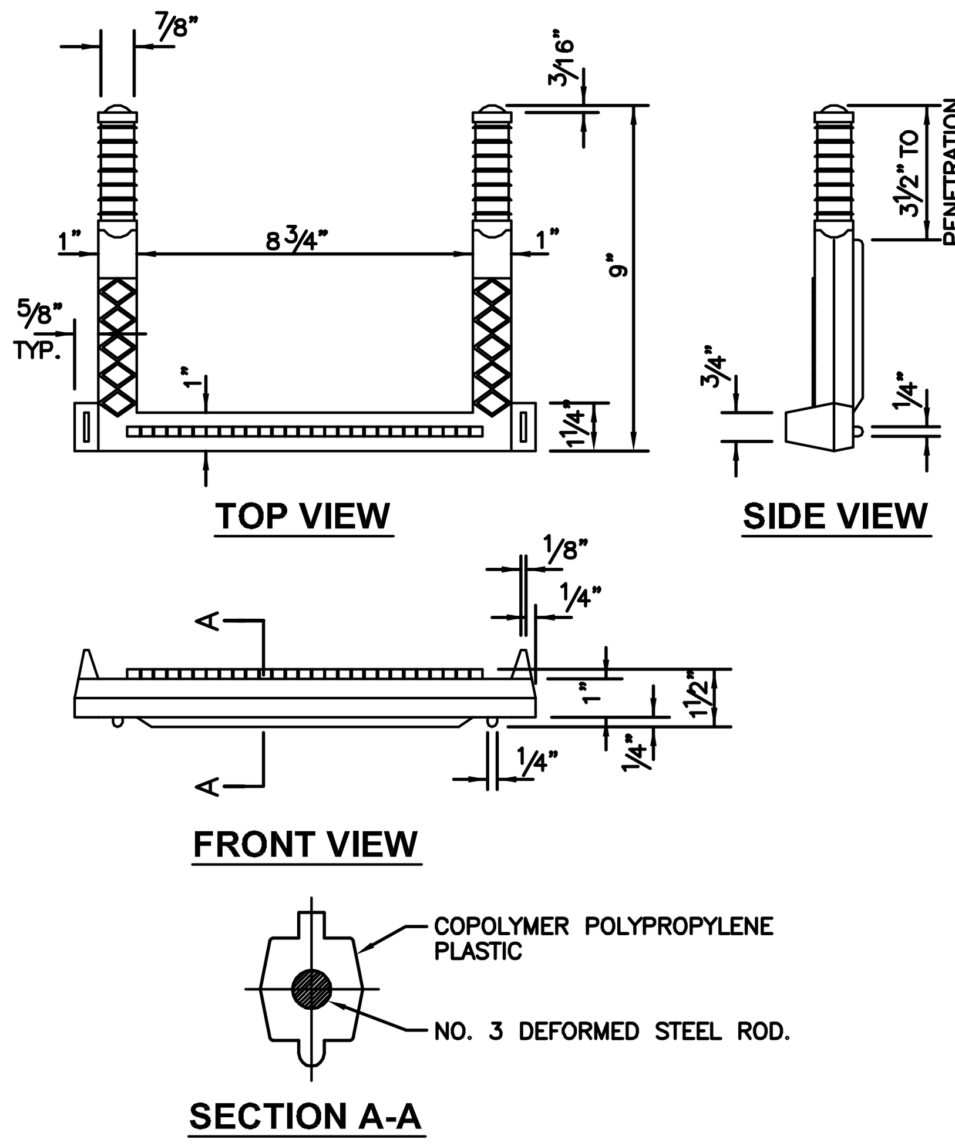
1. Mulch and/or other appropriate vegetative practices shall be applied to disturbed areas within 7 days of grading if the area is to remain dormant (undisturbed) for more than 45 days or on areas and portions of the site which can be brought to final grade.

2. Mulch shall consist of one of the following:

   - Straw--Straw shall be unrotted small grain straw applied at the rate of 2 tons per acre or 90 lb. per 1,000 square feet (two to three bales). The straw mulch shall be spread uniformly by hand or mechanically so the soil surface is covered. For uniform distribution of hand-spread mulch, divide area into approximately 1,000 square foot sections and place two 45 lb. bales of straw in each section.
   - Hydroseeders--Wood cellulose fiber should be used at 2,000 lb. per acre or 46 lb. per 1,000 square feet.
   - Other--other acceptable mulches include mulch mattings applied according to manufacturer's recommendations or wood chips applied at 10-20 tons per acre.

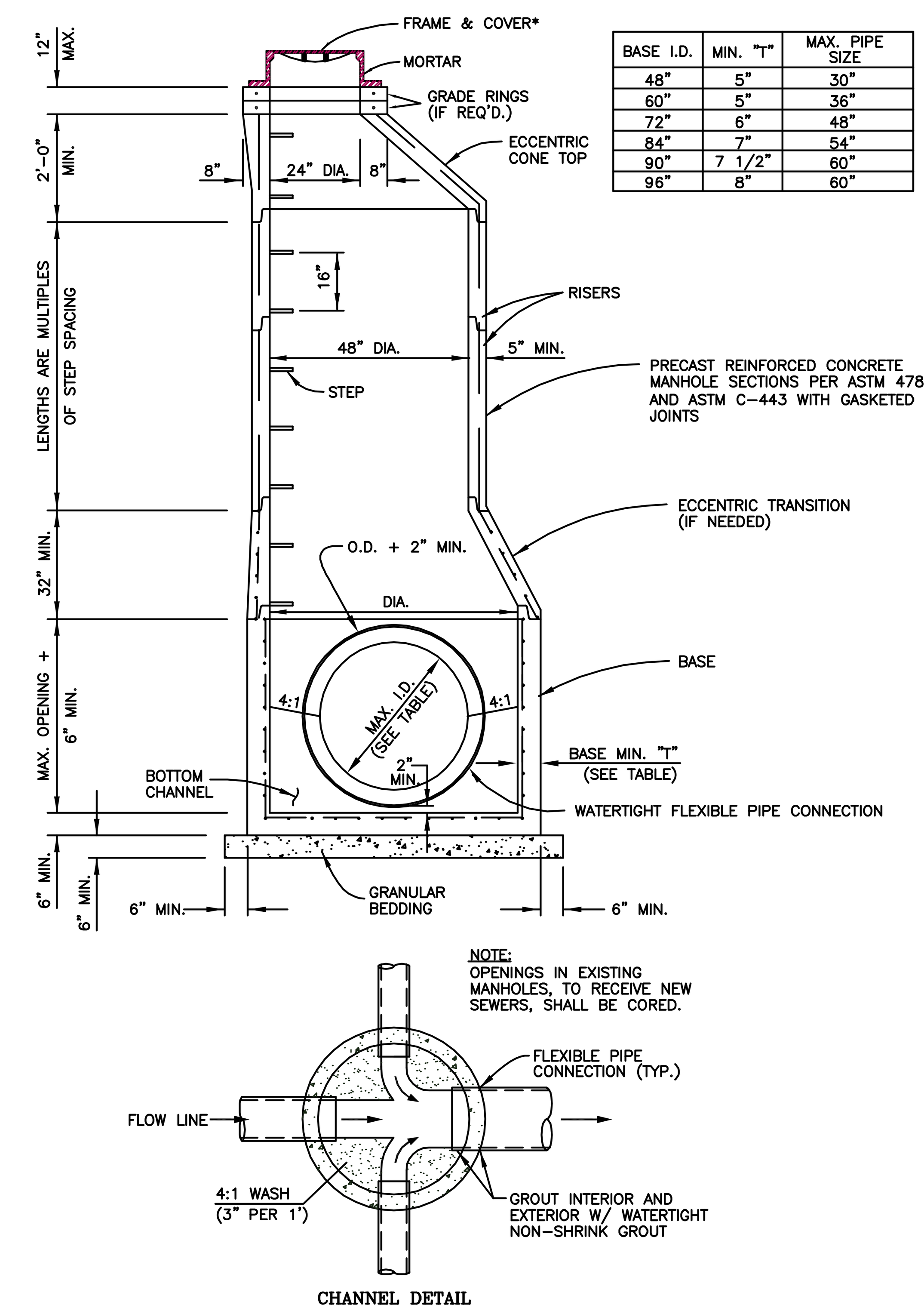
3. Mulch Anchoring--Mulch shall be anchored immediately to minimize loss by wind or runoff. The following are acceptable methods for anchoring mulch.

   - Mechanical--Use a disk, crimper, or similar type tool set straight to punch or anchor the mulch material into the soil. Straw mechanically anchored shall not be finely chopped but be left generally longer than 6 inches.
   - Mulch Nettings--Use according to the manufacturer's recommendations, following all placement and anchoring suggestions. Use in areas of water concentration and steep slopes to hold mulch in place.
   - Asphalt Emulsion--For straw mulch, apply at the rate of 160 gallons per acre (0.1 gal./sy) into the mulch as it is being applied or as recommended by the manufacturer.
   - Synthetic Binders--For straw mulch, synthetic binders such as Acrylic DLR (Agri-Tac), DCA-70, Petroset, Terra Tack of equal may be used at rates recommended by the manufacturer.
   - Wood-Cellulose Fiber--Wood-cellulose fiber may be used for anchoring straw. The fiber binder shall be applied at a net dry weight of 750 lb. per acre. The wood-cellulose fiber shall be mixed with water, and the mixture shall contain a maximum of 50 lb. per 100 gallons of wood cellulose fiber.



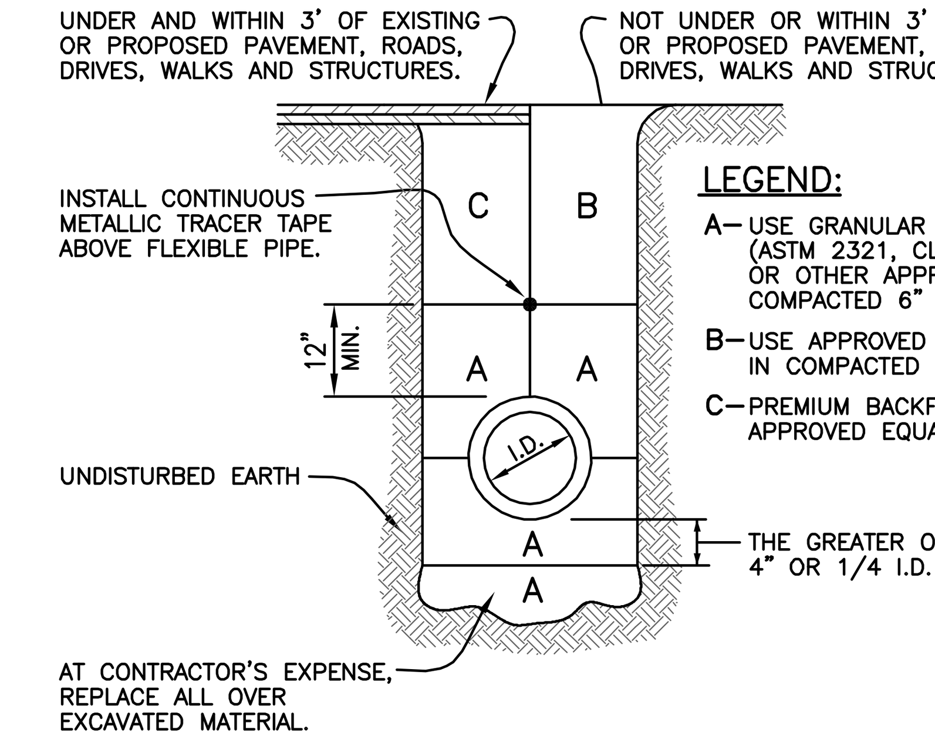
TYPICAL MANHOLE STEP DETAIL
NOT TO SCALE

*FRAME & GRATE NOTE:
STD. FRAME & GRATE: VILLAGE OF CRESTLINE STANDARD, OR EQUAL.
GRADE RINGS WILL BE PRECAST CONCRETE, 4"MIN. TO 12"MAX. THICKNESS



BASE I.D.	MIN. "T"	MAX. PIPE SIZE
48"	5"	30"
60"	5"	36"
72"	6"	48"
84"	7"	54"
90"	7 1/2"	60"
96"	8"	60"

SANITARY MANHOLE
NOT TO SCALE

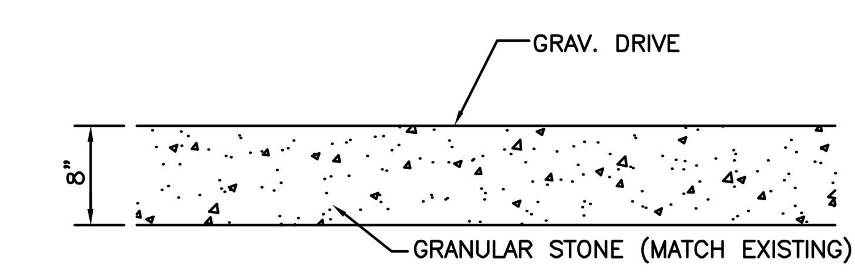


LEGEND:
A— USE GRANULAR BEDDING MATERIAL TYP. (ASTM 2321, CLASS 1 OR AASHTO 56,57,68) OR OTHER APPROVED GRANULAR MATERIAL IN COMPACTED 6" LIFTS.
B— USE APPROVED SELECT EXCAVATED MATERIAL, IN COMPACTED 6" LIFTS.
C— PREMIUM BACKFILL; O.D.O.T. ITEM 304 OR APPROVED EQUAL.

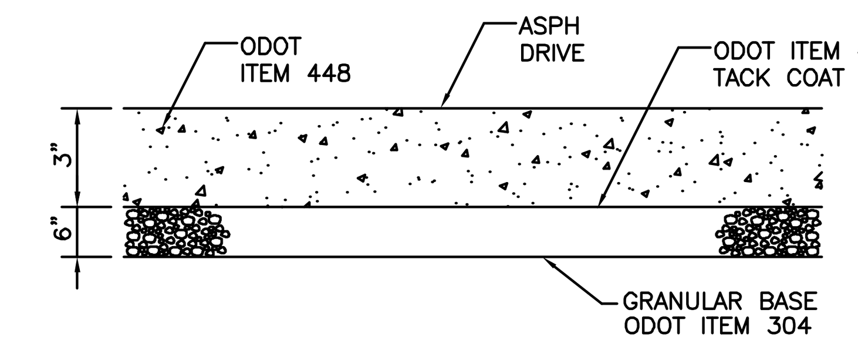
NOMINAL PIPE DIA.	MAX. TRENCH WIDTH AT TOP OF PIPE
THRU 24"	O.D. + 24"
OVER 24" THRU 66"	O.D. + 30"
72" & LARGER	O.D. + 48"

NO SLAG BEDDING SHALL BE USED.

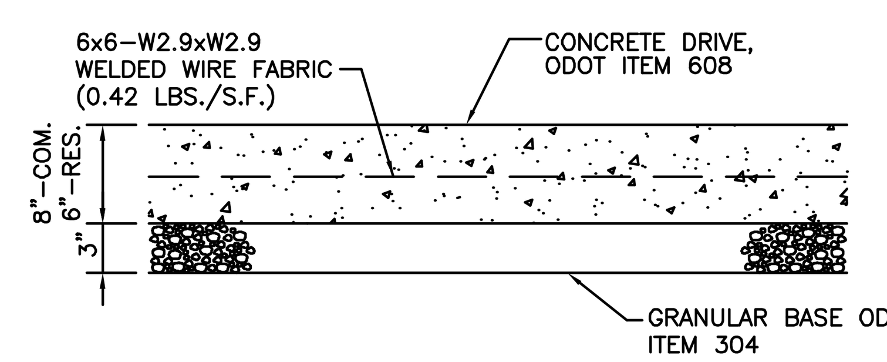
TRENCH & BEDDING DETAILS
NOT TO SCALE



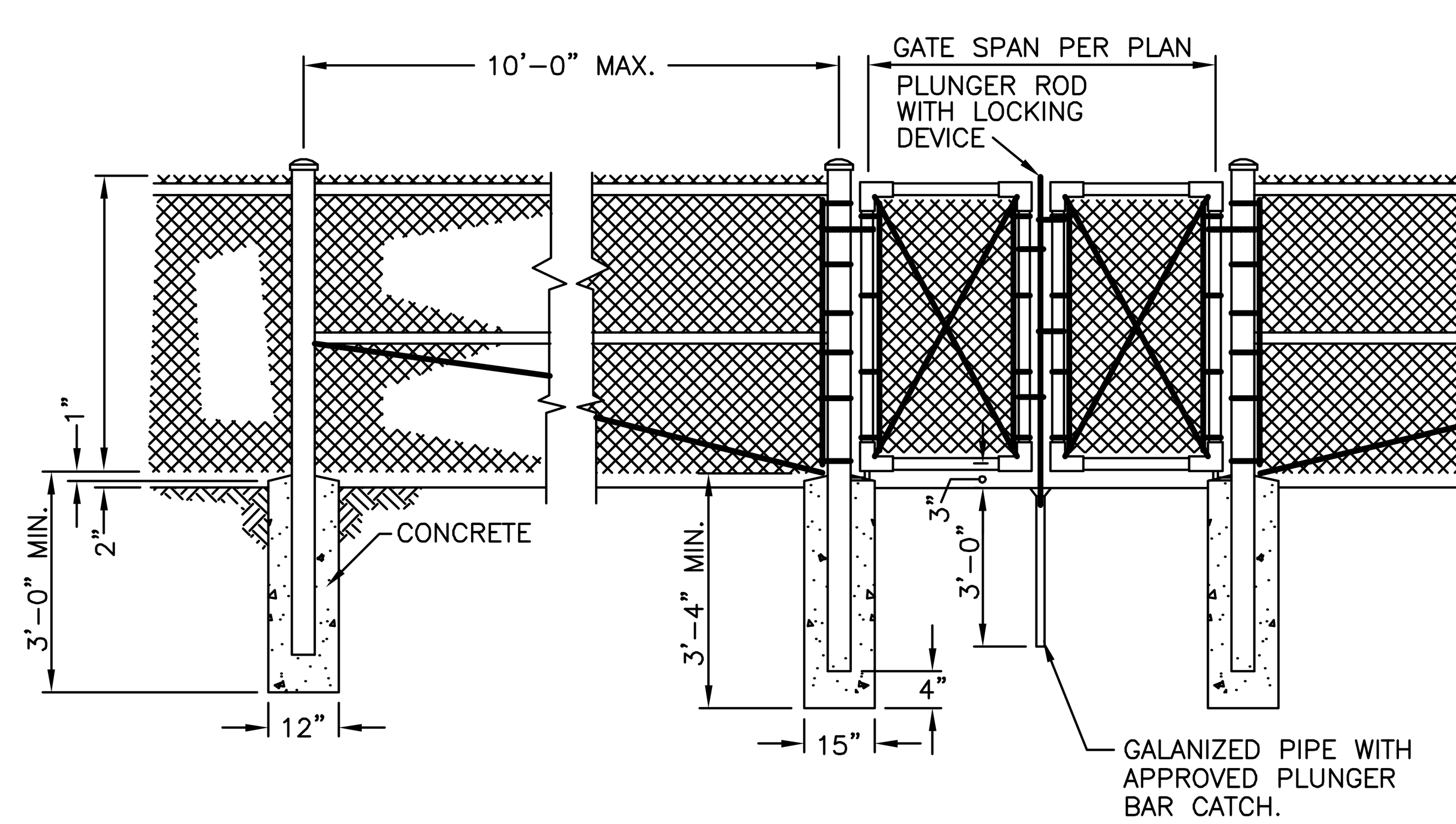
GRAV. DRIVEWAY SECTION
NOT TO SCALE

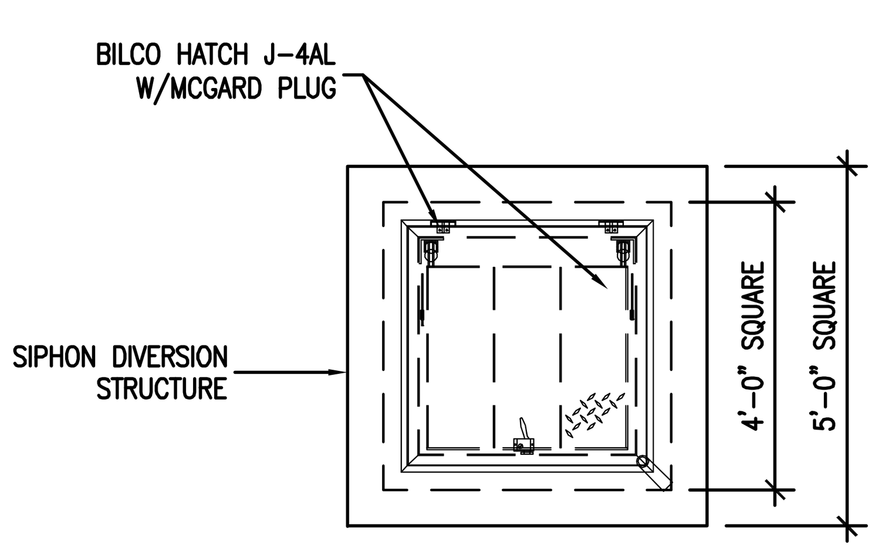


ASPH. DRIVEWAY SECTION
NOT TO SCALE

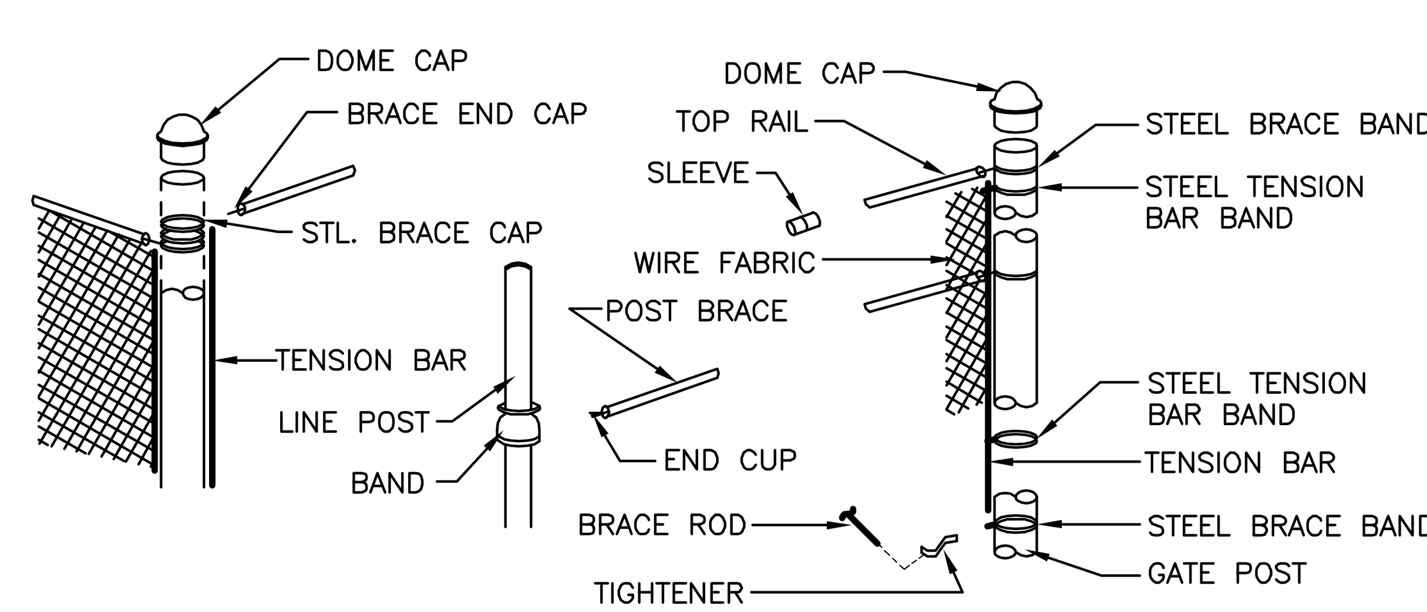


CONC. DRIVEWAY SECTION
NOT TO SCALE

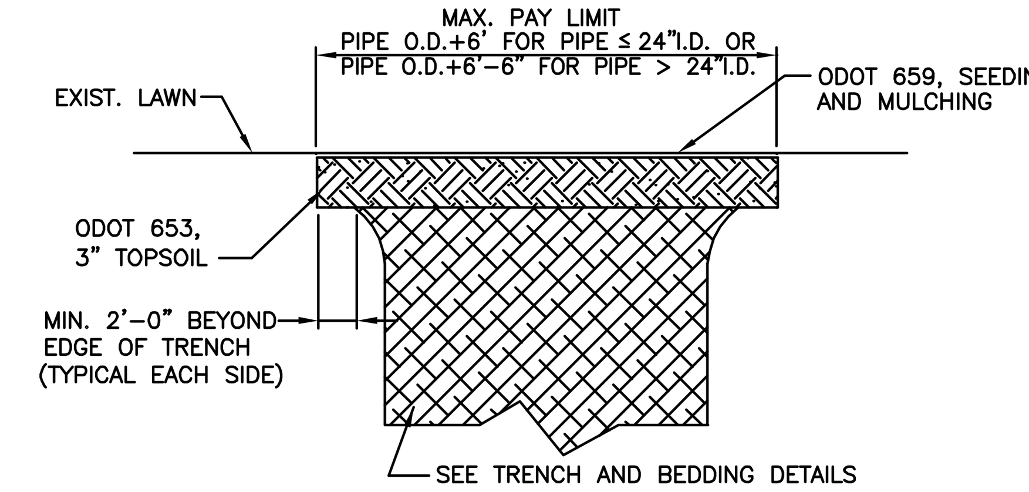




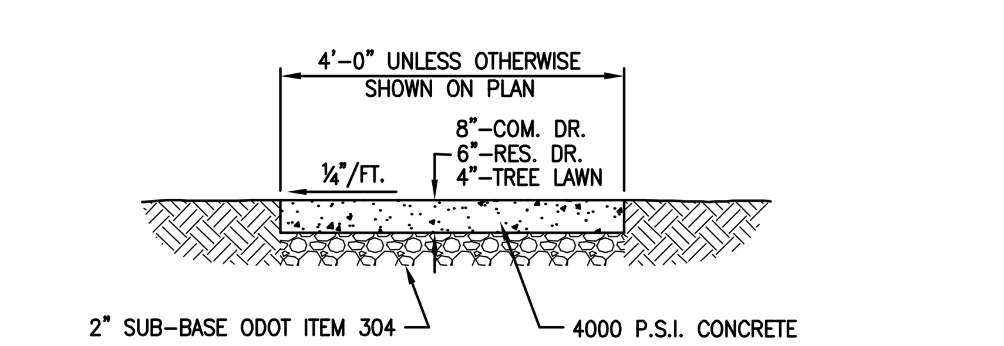
SIPHON DIVERSION STRUCTURE ACCESS DETAIL
NOT TO SCALE



TYPICAL FENCE ASSEMBLY DETAIL
NOT TO SCALE



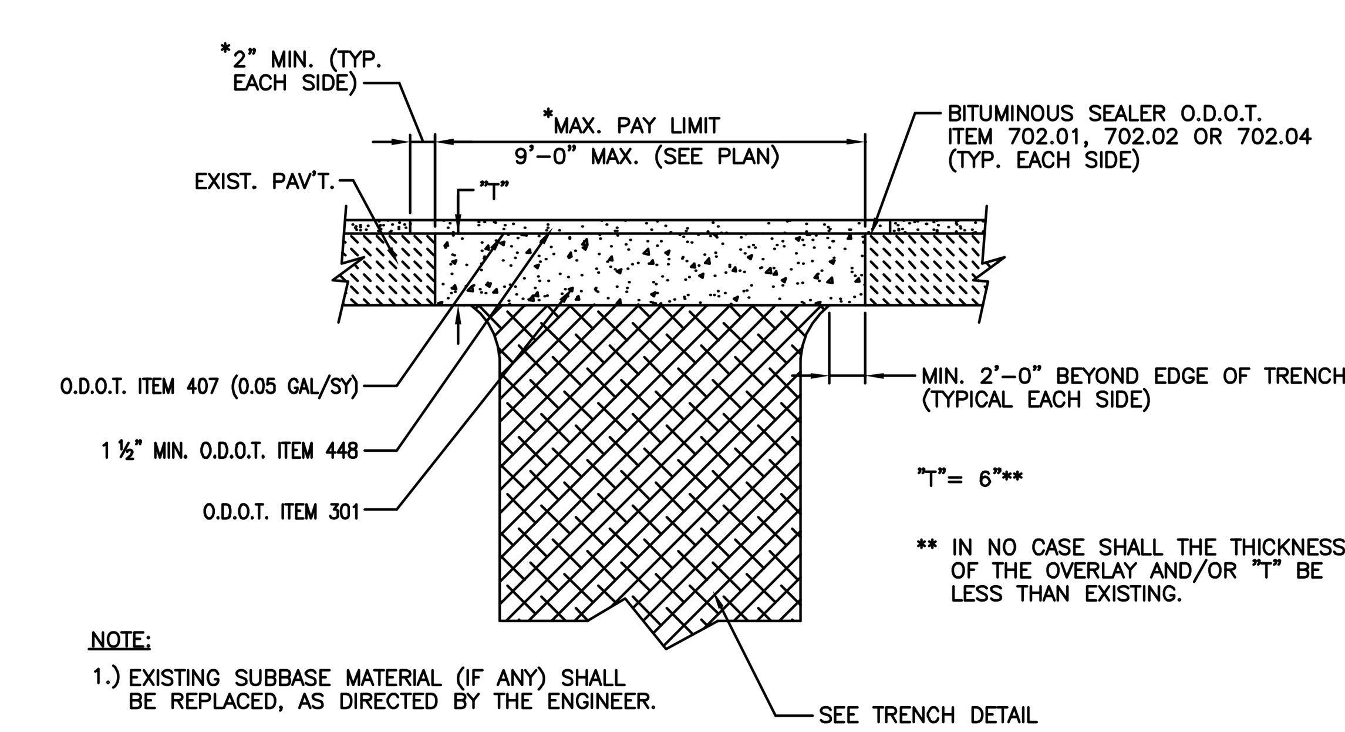
LAWN RESTORATION DETAIL
NOT TO SCALE



APPLY (2) COATS OF ANTI-SPALLING COMPOUND 3 WEEKS AFTER CONCRETE IS POURED. ALLOW DRYING TIME BETWEEN COATS.

NOTE:
WALK TO BE DIVIDED INTO SPACED BLOCKS AT APPROXIMATELY 5' INTERVALS. EXPANSION JOINT FILLER 1" THICK SHALL BE INSTALLED BETWEEN WALK AND ANY FIXED STRUCTURE, EXTENDING FOR THE FULL DEPTH OF THE SIDEWALK. THE EXPANSION JOINT FILLER SHALL BE 1" THICK WHERE WALK IS INSTALLED AGAINST BACK OF CURB.

TYPICAL SIDEWALK DETAIL
NOT TO SCALE



"T"= 6"**

** IN NO CASE SHALL THE THICKNESS OF THE OVERLAY AND/OR "T" BE LESS THAN EXISTING.

NOTE:
1.) EXISTING SUBBASE MATERIAL (IF ANY) SHALL BE REPLACED, AS DIRECTED BY THE ENGINEER.
2.) LIMITS SHALL BE DECREASED WHEN TRENCH IS ADJACENT TO EXISTING CURB. IN WHICH CASE THE PAY LIMITS SHALL NOT ENCROACH CLOSER THAN 1'-0" TO THE FACE OF CURB OR THE EDGE OF ANY INTEGRAL CURB AND GUTTER.

TYPE 'C' PAVEMENT RESTORATION
NOT TO SCALE

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SEWER SEPARATION IMPROVEMENTS PHASE I
STANDARD DETAILS

VILLAGE OF CRESTLINE