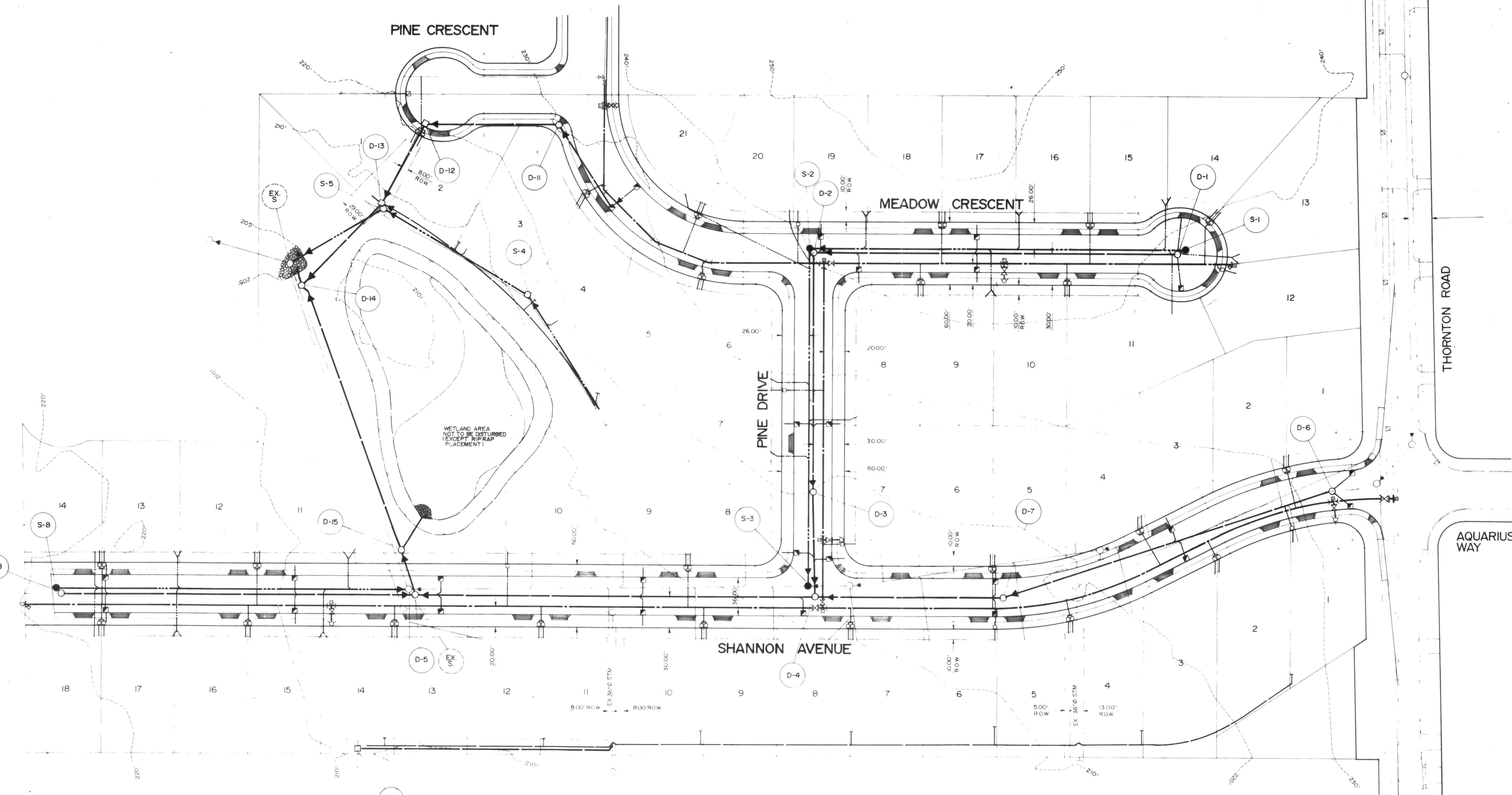


00240.001 2-16-99 FZ



WETLAND AREA NOT TO BE DISTURBED (EXCEPT RIP RAP PLACEMENT)

- LEGEND**
- DENOTES PROPOSED STORM SEWER
 - DENOTES PROPOSED WATER MAIN
 - DENOTES PROPOSED SANITARY SEWER
 - DENOTES PROPOSED FIRE HYDRANT
 - DENOTES PROPOSED CATCH BASIN
 - DENOTES PROPOSED CLEANOUTS

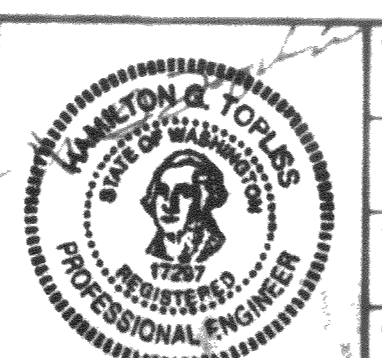
" AS - BUILT "

TO THE BEST OF OUR KNOWLEDGE THESE DRAWINGS SHOW THE DIMENSIONS AND LOCATIONS OF THE WORKS AND THE PLUMBING MATERIALS AS CONSTRUCTED. ITEMS OUTLINED IN A HEAVY BLACK BOX ARE NOT CONSTRUCTED.

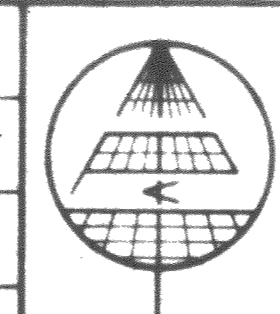
ALL ELEVATIONS ARE DERIVED FROM THE FLANGE ELEVATION OF THE FIRE HYDRANT LOCATED AT LOT 1 EAST SIDE OF SHANNON AVENUE. ELEV.=215.12'

CONTRACTOR TO CONFIRM LOCATION, INVERT AND SIZE OF EXISTING SERVICES, UTILITIES AND IMMEDIATELY NOTIFY MPT ENGINEERING INC. OF ANY CHANGES PRIOR TO CONSTRUCTION.

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D	12 MAY/92	NL	DRK	ADDED "AS-BUILT"
C	2 DEC/91	NL	DSL	PRELIMINARY AS CONSTRUCTED
B	9 SEP/91	NL	DSL	GENERAL REVISIONS
A	15 AUG/91	NL	DSL	ISSUED FOR CITY APPROVAL



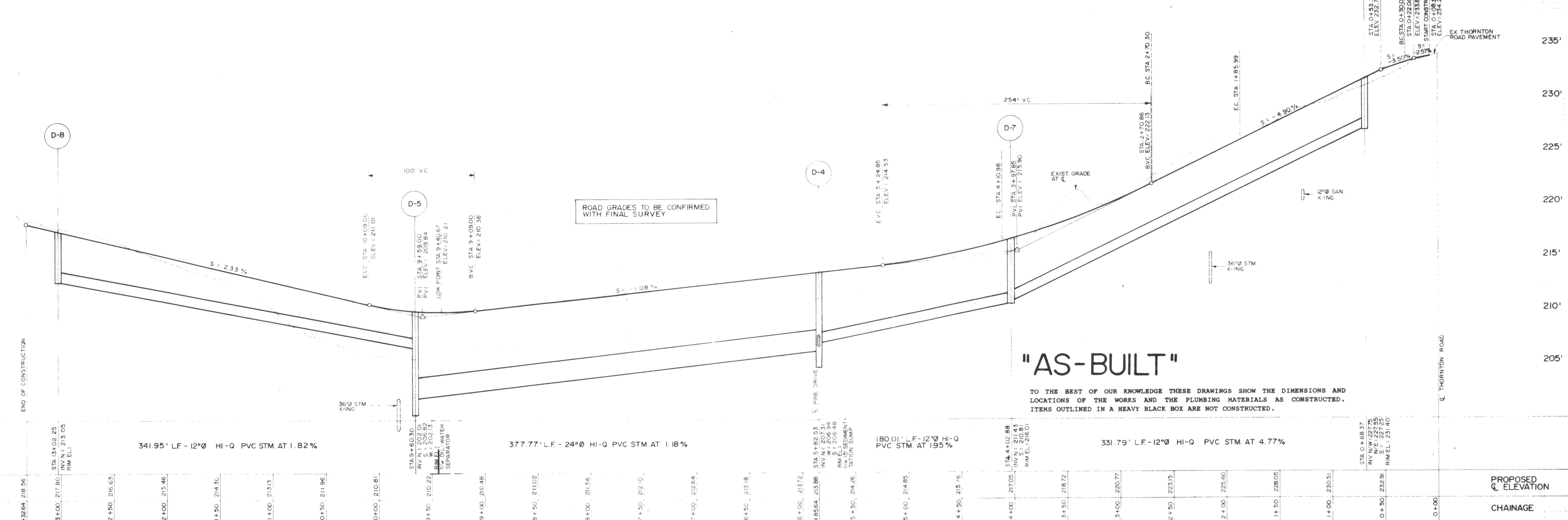
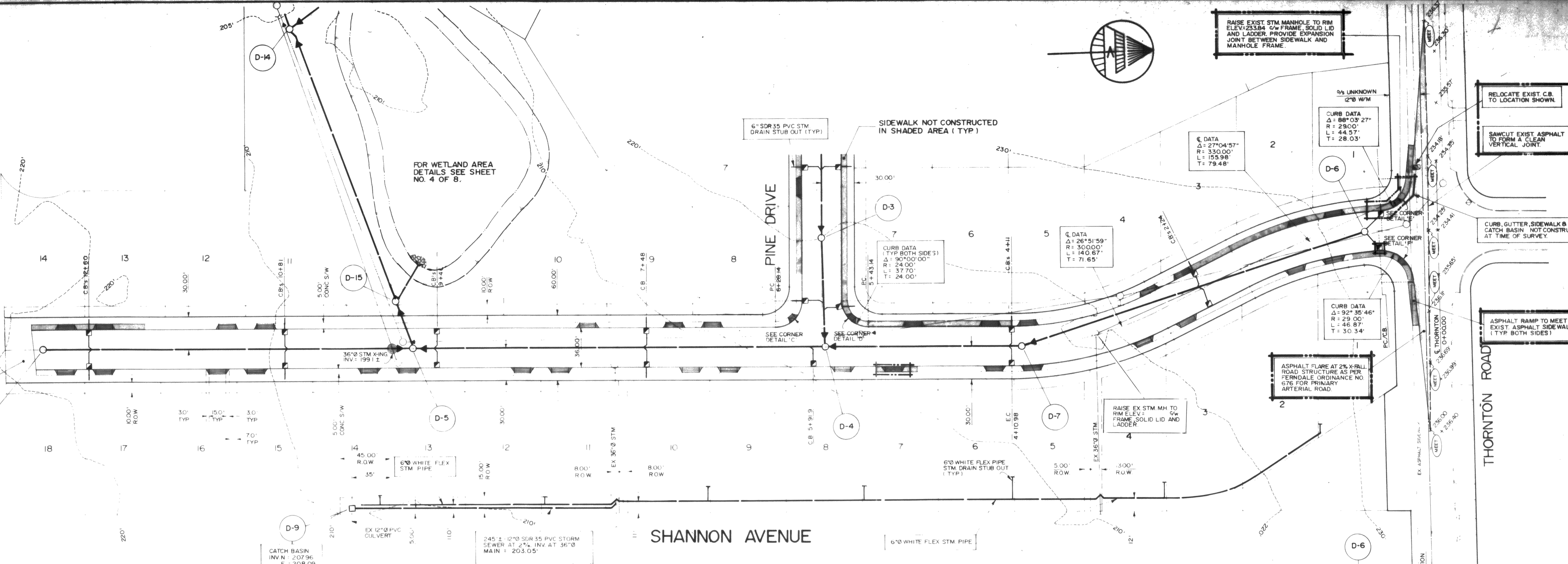
DESIGNED	DRK
DRAWN	NL
CHECKED	DSL
APPROVED	HGT



M.P.T. ENGINEERING INC.
 210 - 8171 COOK ROAD
 RICHMOND, B.C.
 V6Y 3T8 (604) 270-9331
 CONSULTING ENGINEERS & LAND SURVEYORS

THORNTON TERRACE ESTATES
KEY PLAN
 THORNTON ROAD, FERDALE, WASHINGTON

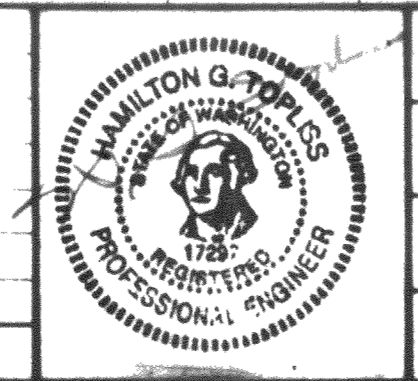
SCALE	1" = 50'
ISSUE DATE	AUG / 1991
SHEET OF	1 8
DWG NO.	F9962
ISSUE	D



BENCHMARK
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DESIGNED DRK
 DRAWN NL
 CHECKED DSL
 APPROVED HGT

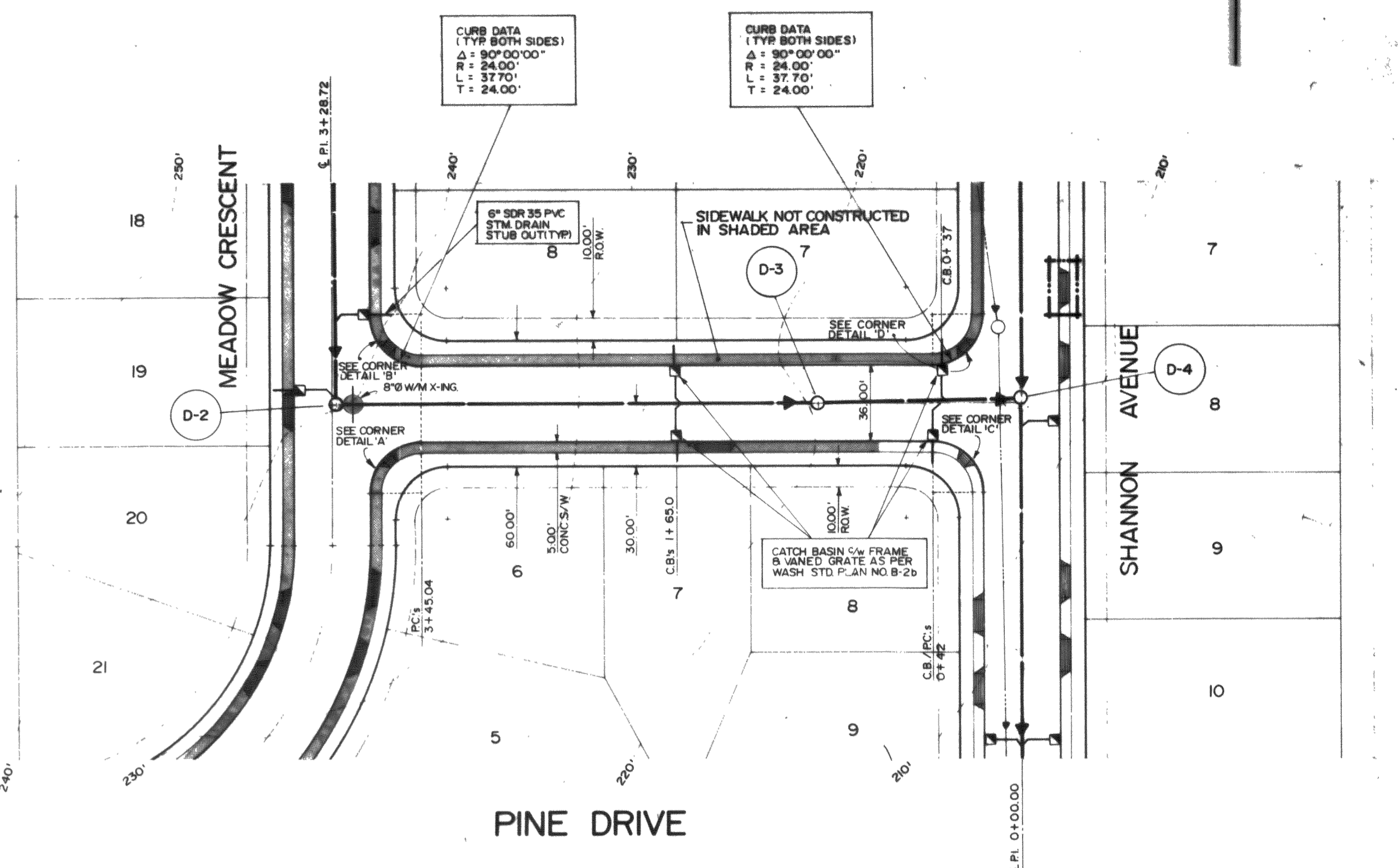
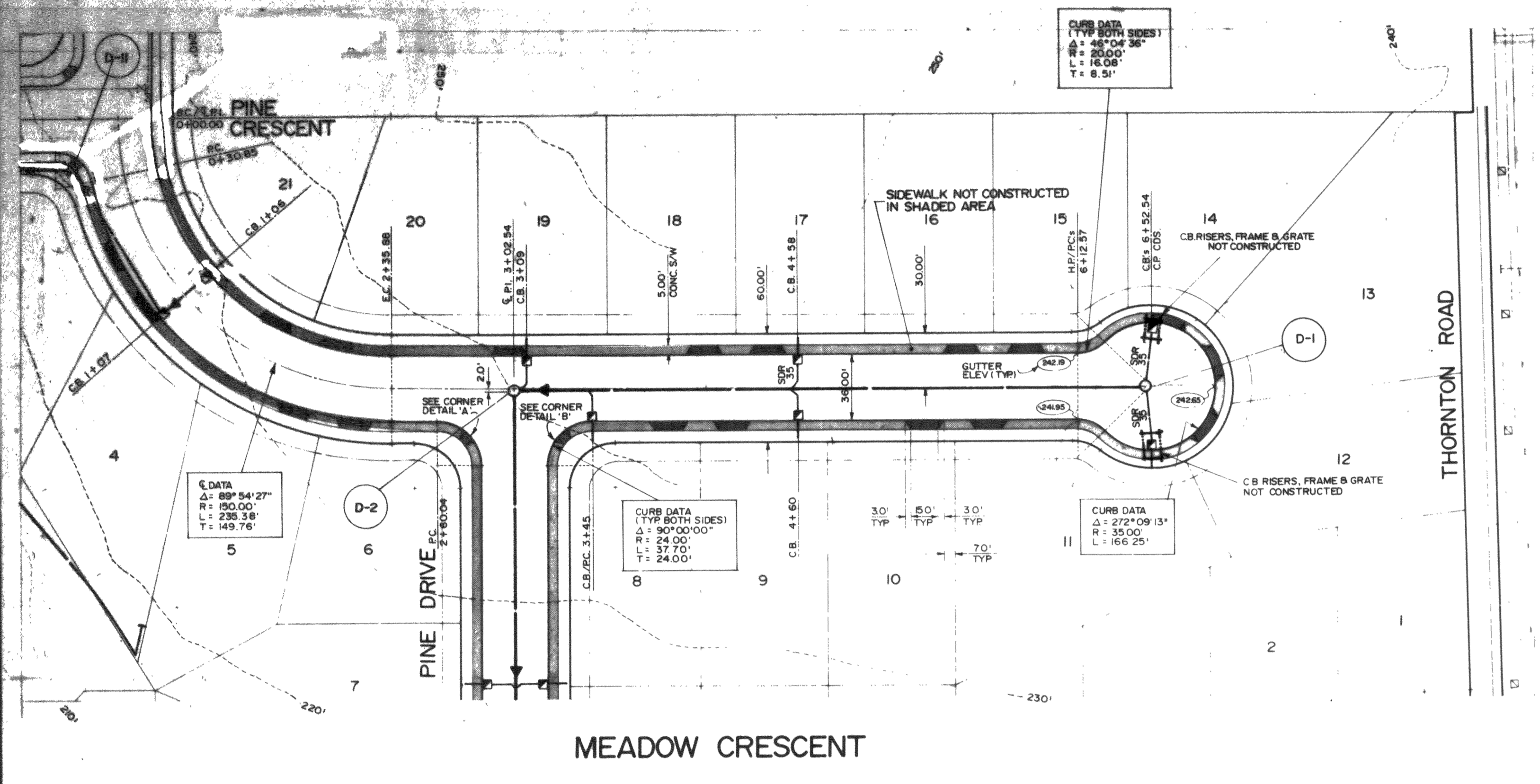
M.P.T. ENGINEERING INC.
 210 - 8171 COOK ROAD
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THORNTON TERRACE ESTATES
ROADWORKS & STORM SEWER
 SHANNON AVENUE
 THORNTON ROAD, FERDALE, WASHINGTON

SCALE	1" = 50' HOR 1" = 5' VER
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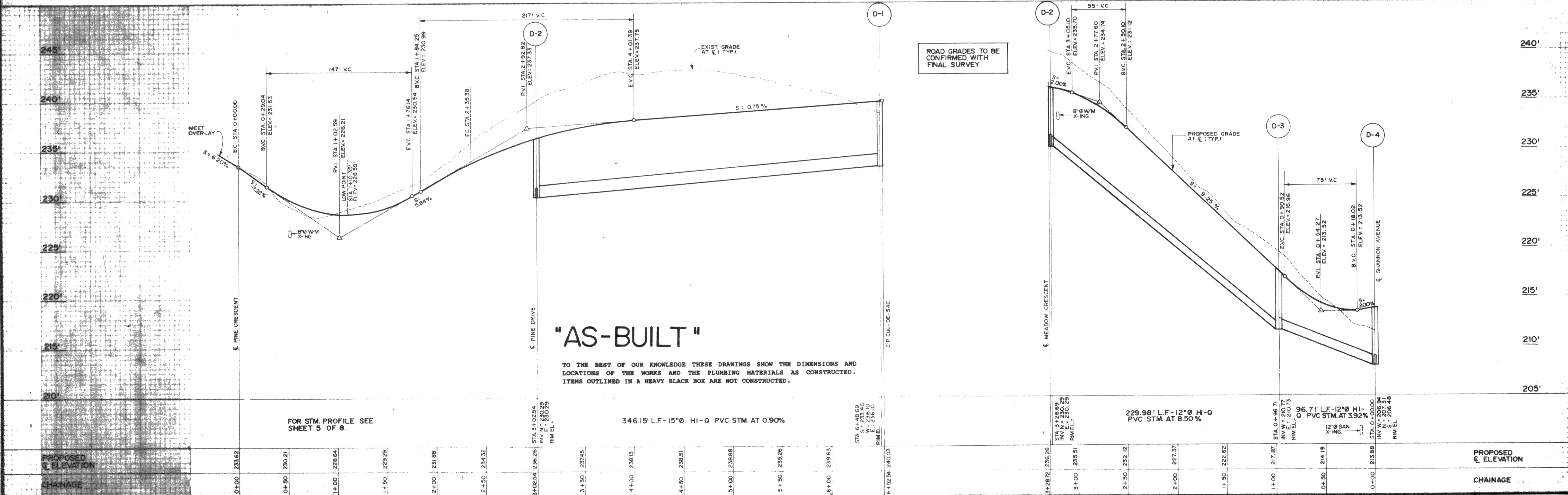
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00240.006 8-16-04 KF



MEADOW CRESCENT

PINE DRIVE



"AS-BUILT"

TO THE BEST OF OUR KNOWLEDGE THESE DRAWINGS SHOW THE DIMENSIONS AND LOCATIONS OF THE WORKS AND THE PLUMBING MATERIALS AS CONSTRUCTED. ITEMS OUTLINED IN A HEAVY BLACK BOX ARE NOT CONSTRUCTED.

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DESIGNED DRK
DRAWN NL
CHECKED DSL
APPROVED HGT

M.P.T. ENGINEERING INC.
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CONSULTING ENGINEERS & LAND SURVEYORS

THORNTON TERRACE ESTATES
ROADWORKS & STORM SEWER
MEADOW CRESCENT & PINE DRIVE
THORNTON ROAD, FERNDALE, WASHINGTON

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ISSUE	D

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DETENTION BASIN

GENERAL NOTES:

1. CONSTRUCTION OF THE DETENTION POND BERM SHALL BE AS FOLLOWS:
 - 1.1 THE BERM SHALL BE CONSTRUCTED ON NATIVE SOIL, FREE OF ROOTS AND OTHER ORGANIC MATTER, COMPACTED TO 95% MODIFIED PROCTOR DENSITY.
 - 1.2 THE BERM SHALL BE CONSTRUCTED BY EXCAVATING A "KEY" WITH A DEPTH EQUAL TO HALF THE CROSS SECTIONAL HEIGHT OF THE BERM AND A WIDTH EQUAL TO HALF THE CROSS SECTIONAL WIDTH OF THE BASE OF THE BERM.
 - 1.3 BERM MATERIALS SHALL CONSIST OF A MINIMUM 30% CLAY, A MAXIMUM 60% SILT, MAXIMUM 60% SAND, WITH NOMINAL GRAVEL AND COBBLE CONTENT. THE MATERIAL SHALL BE LAID IN 6" LIFTS AND COMPACTED TO 95% MODIFIED PROCTOR DENSITY.
2. OVERFLOW SPILLWAYS SHALL BE ARMORED WITH RIP RAP FROM THE TOP OF THE SLOPE TO THE TOE OF THE SLOPE.

RIP RAP SPECIFICATIONS

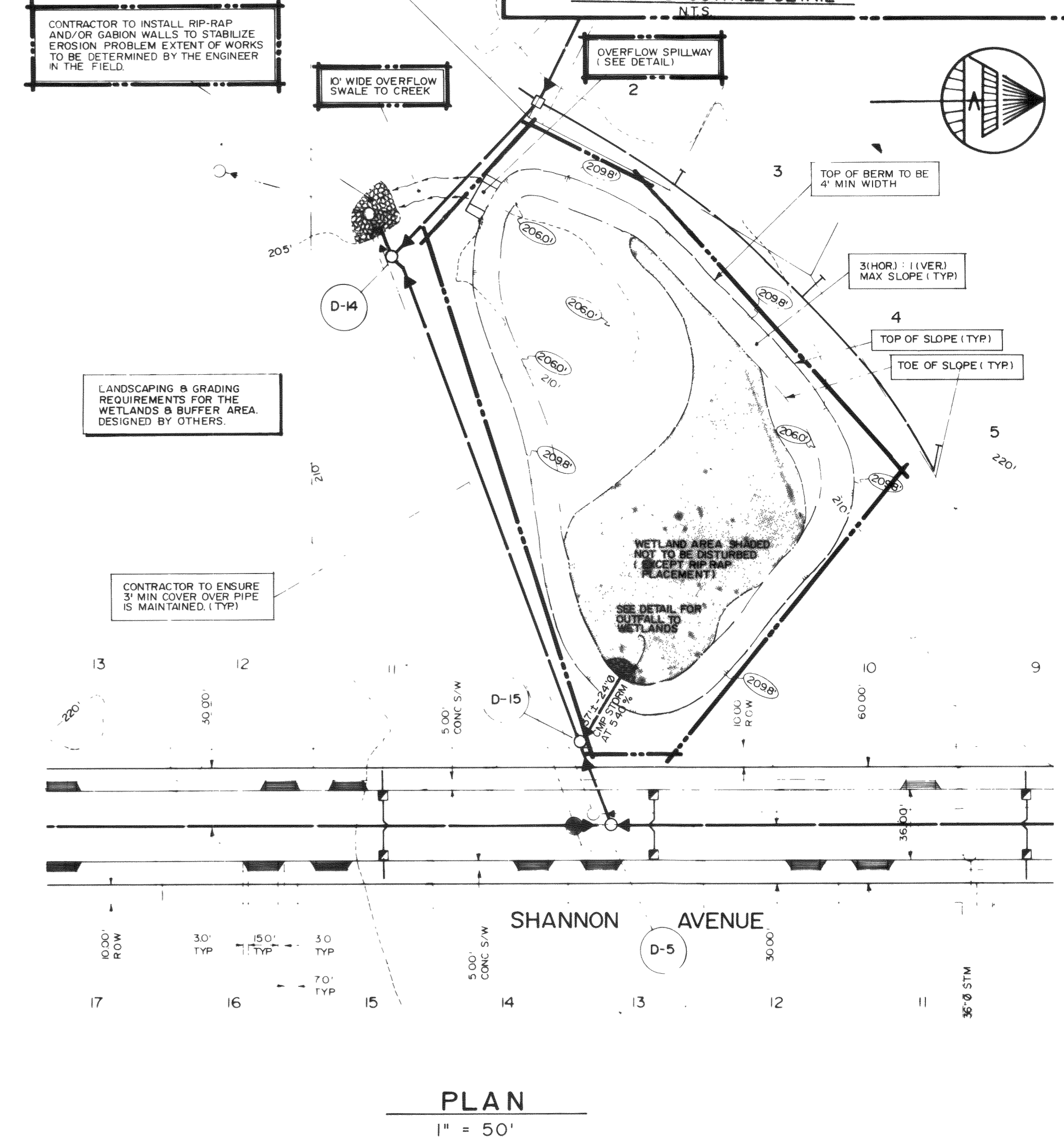
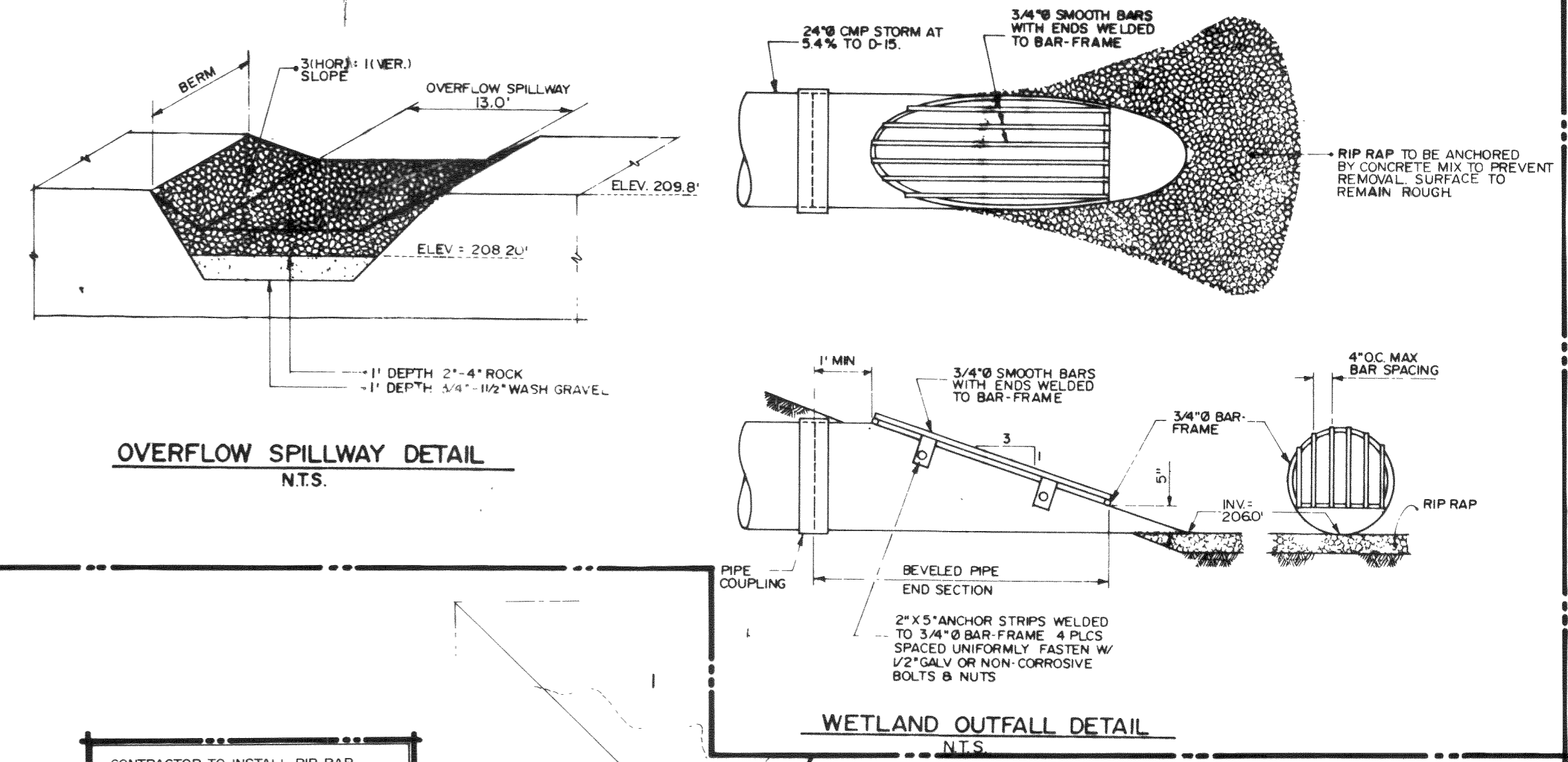
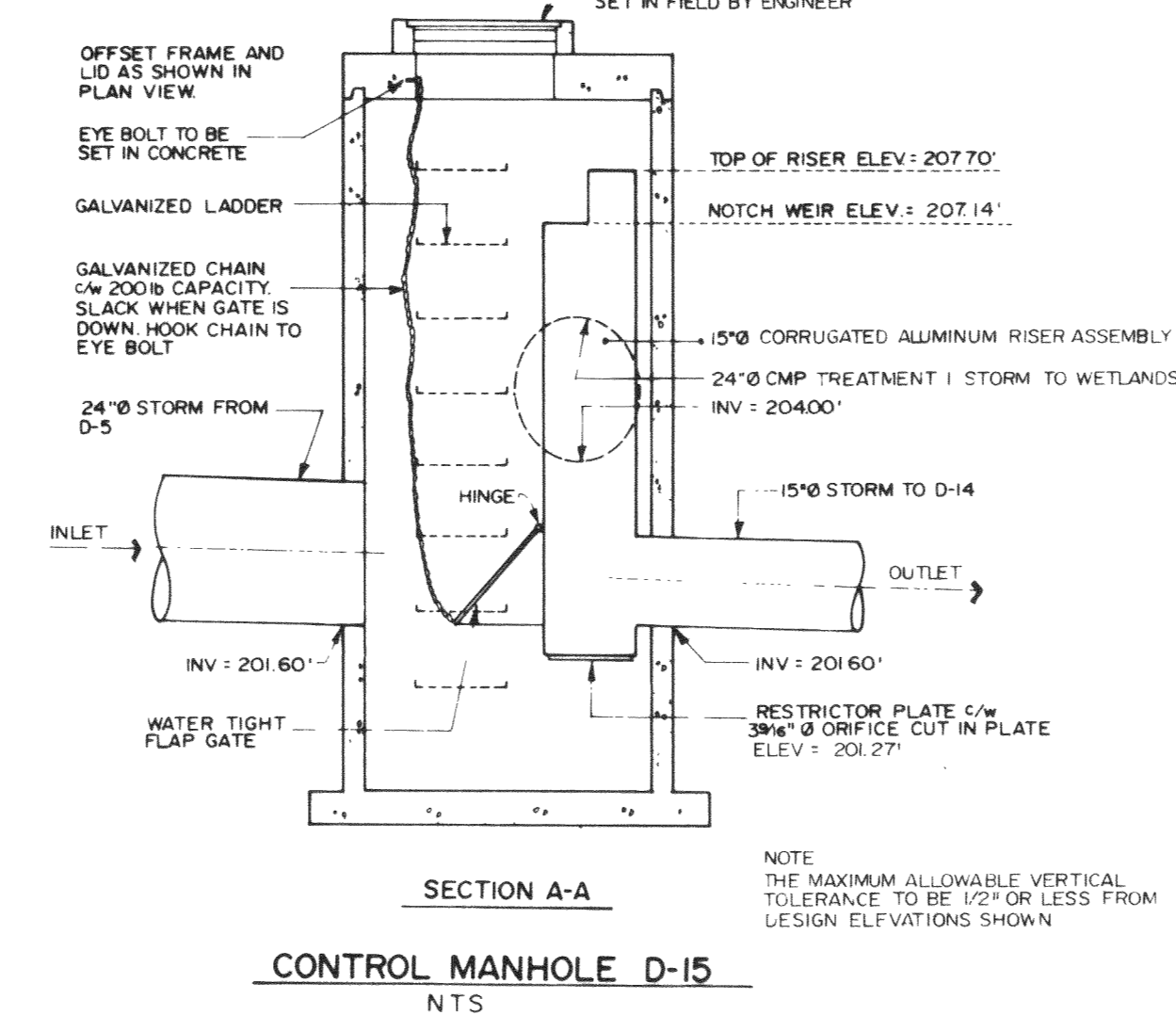
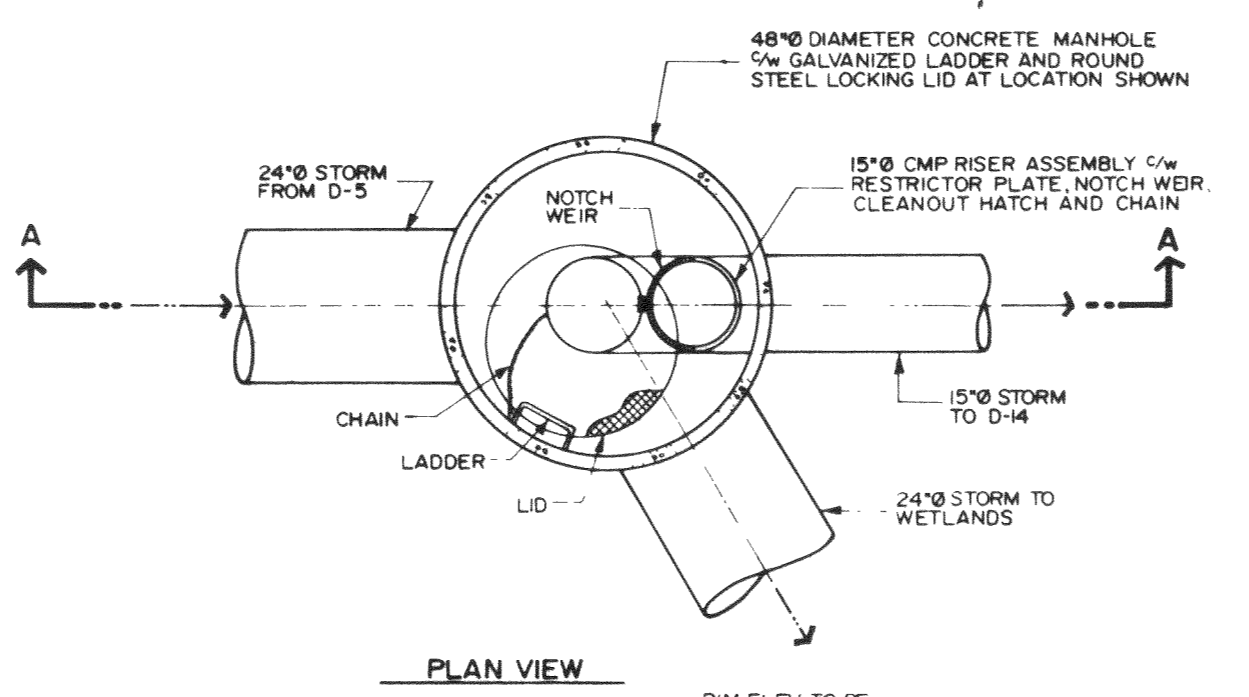
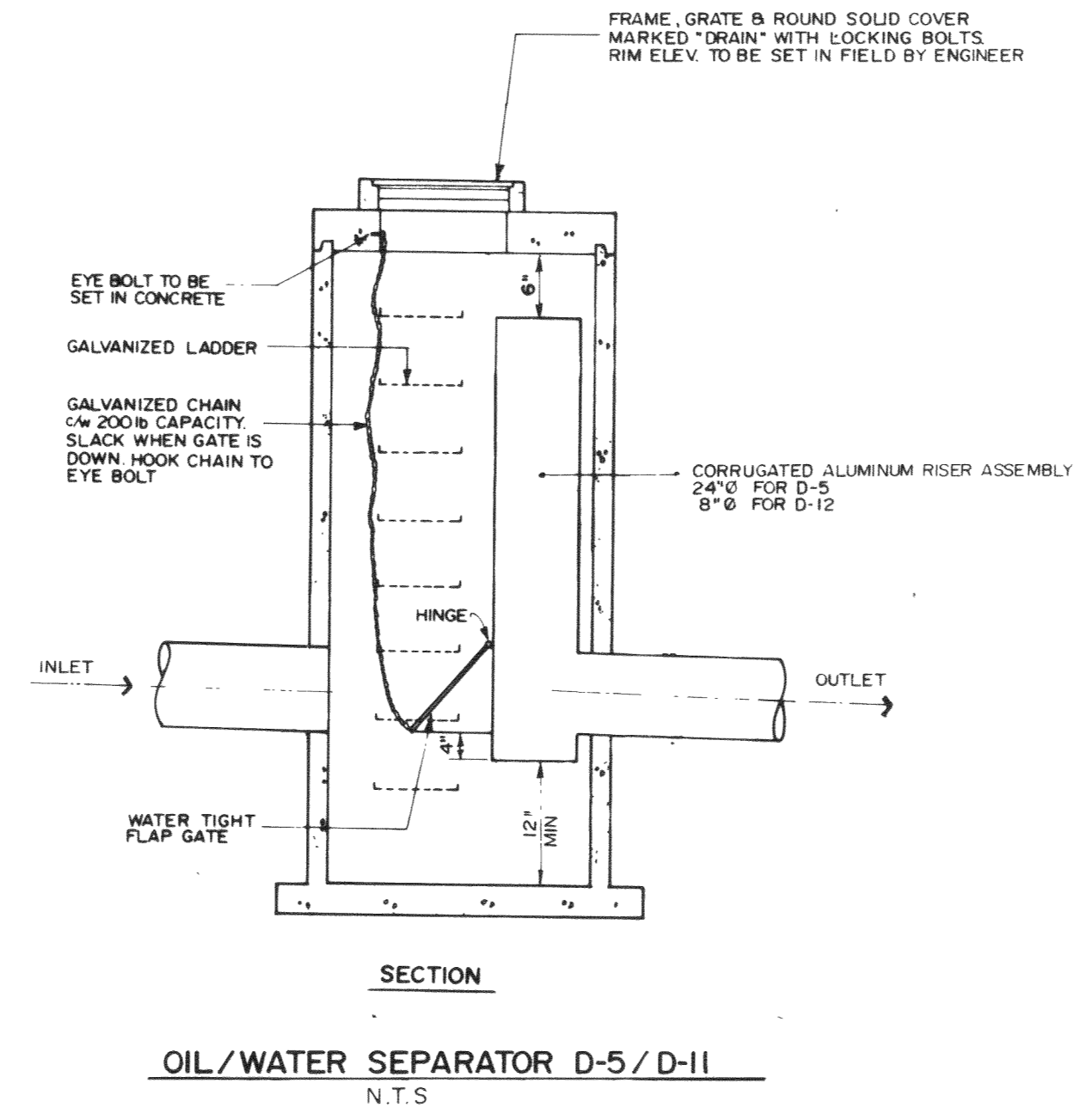
RIP RAP SHALL BE IN ACCORDANCE WITH SECTION 9-13.1 OF THE WSDOT/APWA STANDARD SPECIFICATION. RIP RAP TO BE WELL GRADED WITH ROCK GRADATION AS FOLLOWS:

- PASSING 8" SQUARE SIEVE 100%
- PASSING 6" SQUARE SIEVE 40% TO 60%
- PASSING 2" SQUARE SIEVE 0% TO 10%

*SIZE OF RIP RAP AREA SHALL BE:

- FOR WETLAND OUTFALL: LENGTH 8', WIDTH 8', DEPTH 1'
- FOR STREAM OUTFALL: LENGTH 12'MIN., WIDTH 9'MIN., DEPTH 1'

*OR AS DIRECTED IN THE FIELD BY THE ENGINEER



"AS-BUILT"

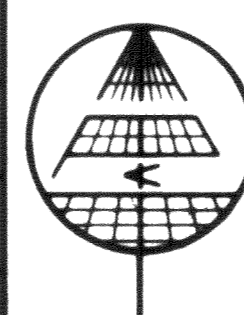
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(604) 270-9331
CONSULTING ENGINEERS & LAND SURVEYORS

THORNTON TERRACE ESTATES

AS SHOWN

AUG /1991

SHEET 4 OF 8

DWG NO. F 9962

ISSUE C

THORNTON ROAD, FERDALE, WASHINGTON

GENERAL NOTES

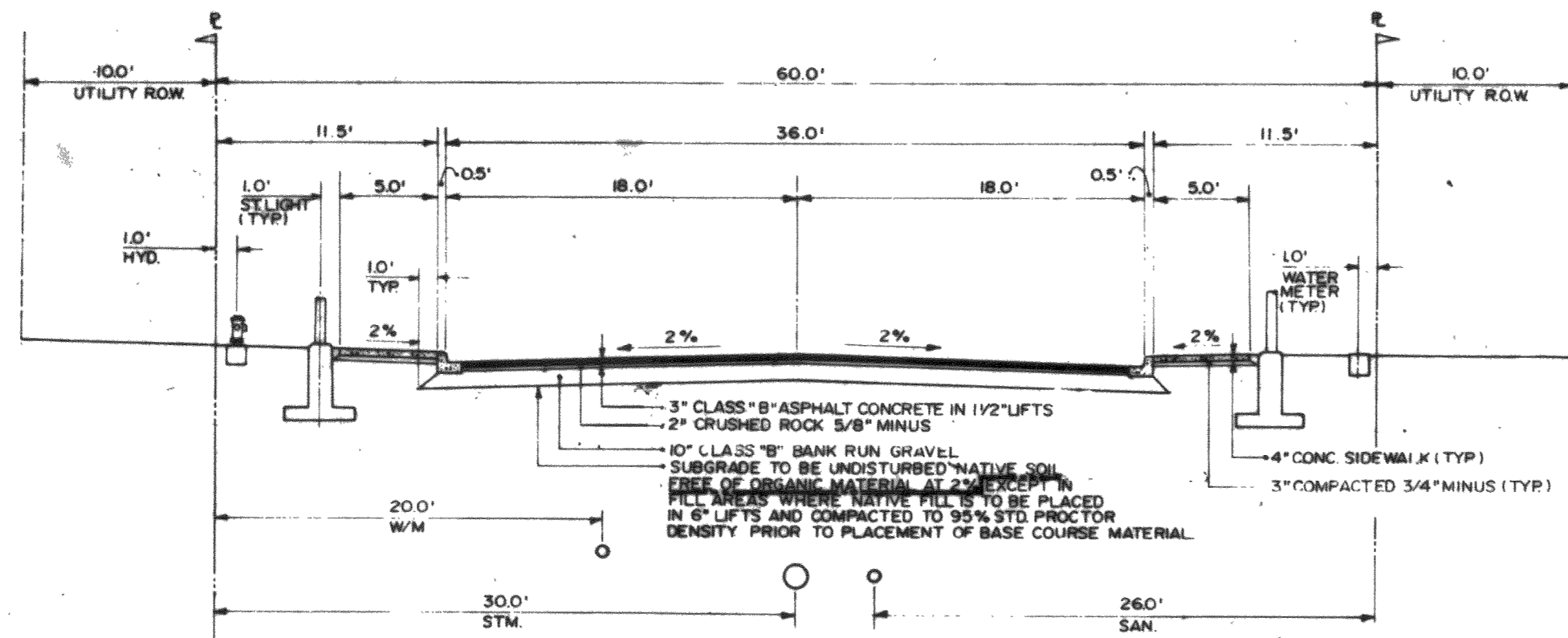
- ALL WORKS TO BE CONSTRUCTED IN ACCORDANCE WITH THE WSDOT 1991 STANDARD SPECIFICATIONS FOR ROAD, BRIDGE AND MUNICIPAL CONSTRUCTION AND WSDOT STANDARD PLANS FOR ROAD, BRIDGE AND MUNICIPAL CONSTRUCTION UNLESS OTHERWISE NOTED ON THE DRAWINGS OR INSTRUCTED BY THE ENGINEER.
- LOCATIONS OF EXISTING UTILITIES SHOWN ON THE PLANS ARE APPROXIMATE ONLY AND IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE EXACT LOCATIONS (HORIZONTALLY AND VERTICALLY) OF ALL UTILITIES PRIOR TO ANY CONSTRUCTION TO AVOID DAMAGE OR DISTURBANCE. ALL FINDINGS SHALL BE REPORTED TO MPT ENGINEERING INC. PRIOR TO ANY CONSTRUCTION.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ADEQUATE SAFEGUARDS, SAFETY DEVICES, PROTECTIVE EQUIPMENT, FLAGGERS AND ANY OTHER NEEDED ACTIONS TO PROTECT THE LIFE, HEALTH AND SAFETY OF THE PUBLIC AND TO PROTECT PROPERTY IN CONNECTION WITH THE PERFORMANCE OF WORK COVERED BY THE CONTRACT. ANY WORK WITHIN THE TRAVELLED RIGHT-OF-WAY THAT MAY INTERRUPT NORMAL TRAFFIC FLOW SHALL REQUIRE AT LEAST ONE FLAGGER FOR EACH LANE OF TRAFFIC AFFECTED. ALL SECTIONS OF THE WSDOT STANDARD SPECIFICATION 1-07.23 TRAFFIC CONTROL SHALL APPLY.
- CONTRACTOR MUST SUBMIT TO FERNDALE CITY HALL PROOF OF LIABILITY INSURANCE PRIOR TO CONSTRUCTION.
- CONTRACTOR NOT TO INSTALL SERVICES NOR WORK ON PRIVATE PROPERTY PRIOR TO WRITTEN APPROVAL FROM THE PROPERTY OWNER. APPROVAL TO BE OBTAINED BY DEVELOPER.
- REPORT ANY DISCREPANCIES TO THE ENGINEER PRIOR TO COMMENCEMENT OF CONSTRUCTION.
- UNDERGROUND SERVICE CROSSING INDICATED THUS:

DRAINAGE NOTES

- ALL PIPE AND APPURTENANCES SHALL BE LAID ON A PROPERLY PREPARED FOUNDATION IN ACCORDANCE WITH WSDOT 7-04.3. THIS SHALL INCLUDE LEVELING AND COMPACTING THE TRENCH BOTTOM, THE TOP OF FOUNDATION MATERIALS AND ANY REQUIRED PIPE BEDDING TO A UNIFORM GRADE SO THAT THE SERVICE PIPE IS SUPPORTED BY A UNIFORM UNYIELDING BASE.
- ALL DRAINAGE STRUCTURES SUCH AS CATCH BASINS AND MANHOLES NOT LOCATED WITHIN A TRAVELLED ROADWAY OR SIDEWALK, SHALL HAVE SULLU LOCKING LIDS. ALL DRAINAGE STRUCTURES ASSOCIATED WITH A PERMANENT RETENTION/DETENTION FACILITY SHALL HAVE SOLID LOCKING LIDS.
- ALL CATCH BASINS TO BE TYPE 4 AS PER WSDOT PLAN NO. B-1J COMPLETE WITH FRAME AND METAL GRATE AS PER WSDOT PLAN B-2A, UNLESS OTHERWISE NOTED.
- ALL CATCH BASIN GRATES SHALL BE STAMPED "OUTFALL TO STREAM, DUMP NO POLLUTANTS".
- ALL SERVICE CONNECTIONS SHALL BE PVC WITH FACTORY WYE OR TEE AT MAN.
- SYMBOL SHOWN THUS INDICATES FLOW DIRECTION
- NOTIFY THE CITY OF FERNDALE 48 HOURS IN ADVANCE OF ANY UTILITY RELOCATION.
- ALL CHANGES RELATE TO CENTRELINE ASPHALT UNLESS OTHERWISE NOTED.
- 12" DIAMETER AND SMALLER PIPES TO BE PVC SDR 35 AS PER WSDOT 9-05.12. 18" DIAMETER OR LARGER PIPES TO BE REINFORCED CONCRETE AS PER WSDOT 9-05.7(2).
- CONNECT ALL EXISTING DRAINS AS DIRECTED BY THE ENGINEER.
- ALL LOT SERVICE CONNECTIONS ARE TO BE INSTALLED AT AN INVERT ELEVATION 3.5' LOWER THAN THE LOWEST FRONT LOT CORNER ELEVATION.

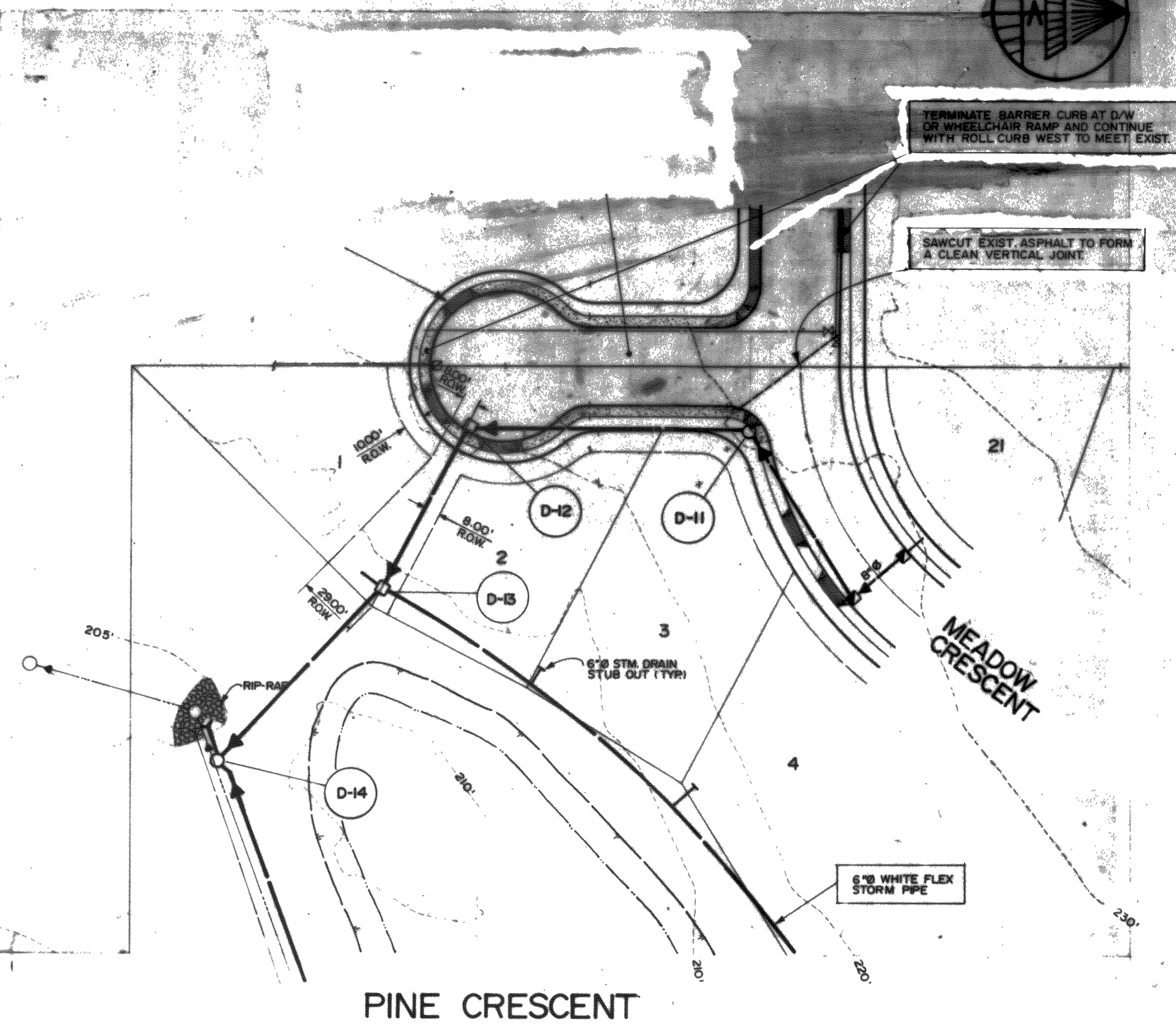
ROADWORKS NOTES

- EXISTING DRIVEWAYS SHALL BE REINSTATED AT DEVELOPER'S COST FROM BACK OF CURB OR SIDEWALK AS FOLLOWS:
 - CONCRETE DRIVEWAYS TO BE REINSTATED WITH CONCRETE
 - ASPHALT DRIVEWAYS TO BE REINSTATED WITH ASPHALT
 - PAVEMENT, VALVE HOLES, ETC. LOCATED IN ROADWAY AREA SHALL BE RAISED/LOWERED TO MEET NEW SURFACE ELEVATION
 - ROAD CENTERLINE ARE REINSTATED ALONG CENTRELINE OF ASPHALT.
- SURFACE WORKS ON ROADWAYS SHALL NOT BE COMPLETED UNTIL ALL HYDRO, TELEPHONE, GAS AND CABLE WORKS HAVE BEEN INSTALLED OR SIX MONTHS, WHICHEVER IS SOONER.

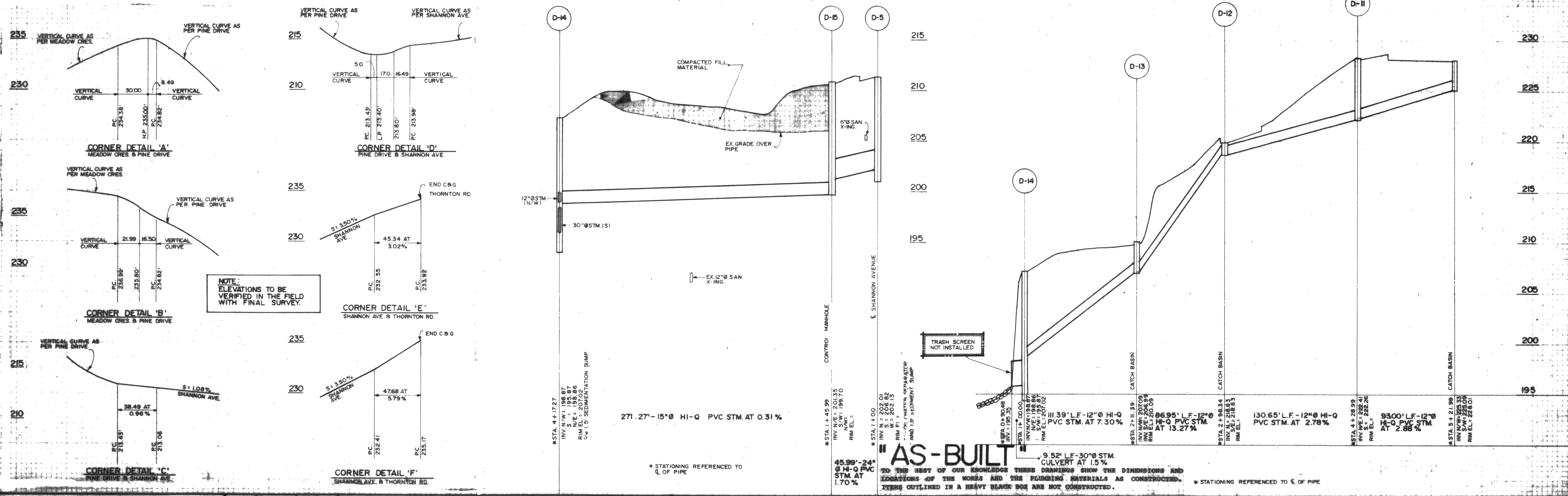


TYPICAL ROAD X-SECTION (SHANNON AVE. ONLY)

- AS ABOVE EXCEPT CENTERLINE TO BE 2" ASPHALT CONCRETE
- 3" ASPHALT CONCRETE
- 4" ASPHALT CONCRETE
- LONG DRAINAGE OF 10" MIN. GRAVEL BASE AND 1" CRUSHED ROCK, 5/8" MINUS



PINE CRESCENT



"AS-BUILT"
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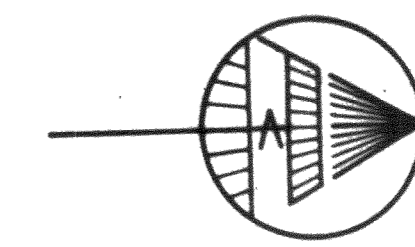


DESIGNED DRK
 DRAWN NL
 CHECKED DSL
 APPROVED HGT

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 V6Y 3T8
 (604) 270-9331
 CONSULTING ENGINEERS & LAND SURVEYORS

THORNTON TERRACE ESTATES
ROADWORKS & STORM SEWER
 PINE CRESCENT /
 NOTES & DETAILS
 THORNTON ROAD, FERNDALE, WASHINGTON

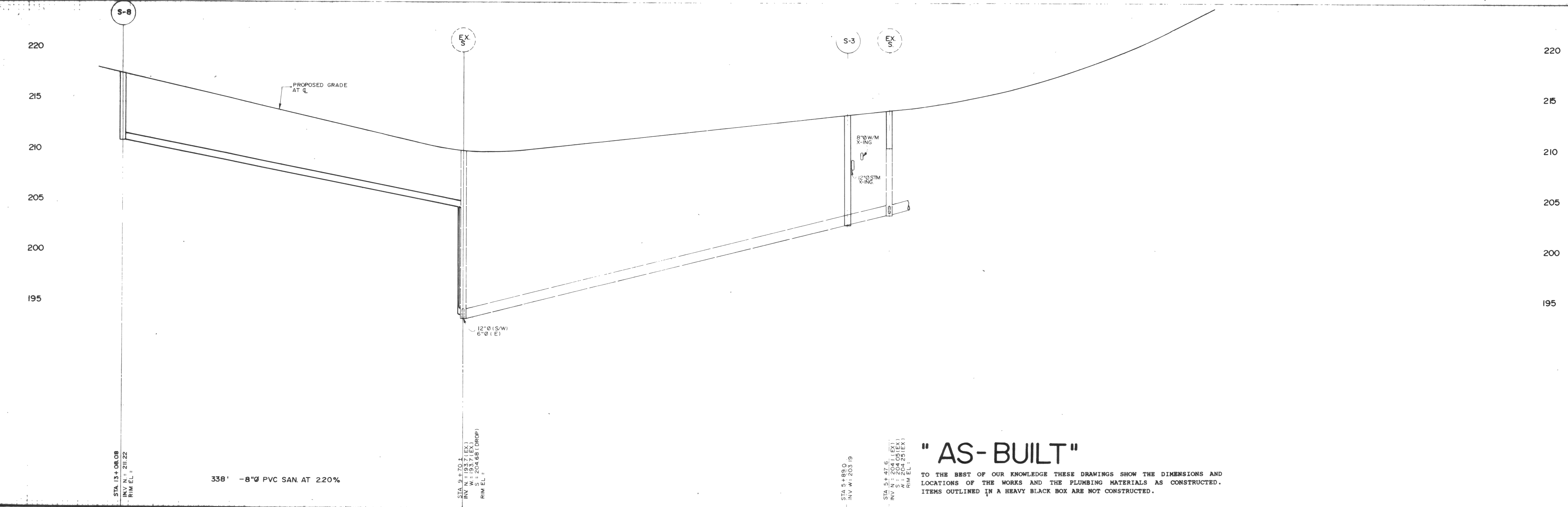
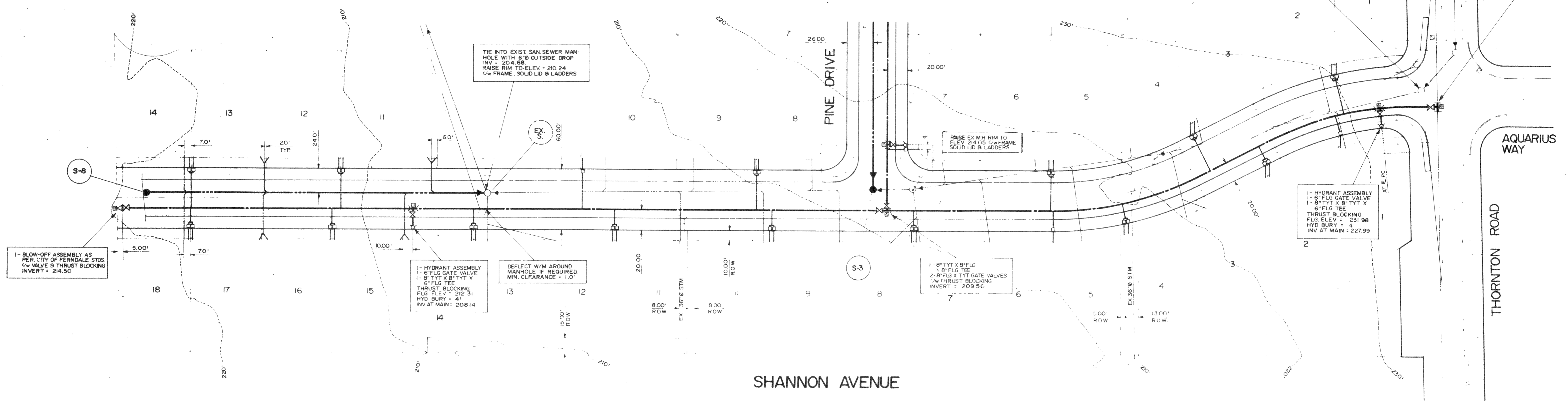
SCALE	1" = 50' HOR 1" = 5' VER.
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ISSUE	D



CONTRACTOR TO RAISE EX. MANHOLE TO RIM ELEV. 223.58 C/W FRAME, SOLID LID AND LADDER. CONTRACTOR TO ESTABLISH NEW PERMANENT BENCHMARK AND NOTIFY M.P.T. ENGINEERING INC. PRIOR TO CONSTRUCTION.

CONTRACTOR TO NOTIFY FERNDALE PUBLIC WORKS DEPARTMENT 48 HOURS PRIOR TO CONNECTION TO EXISTING SYSTEM.

1- 12" FLG X 12" FLG X 8" FLG TEE
1- 8" FLG X TYP. GATE VALVE
2- 12" TRANSITION COUPLING
THRUST BLOCKING



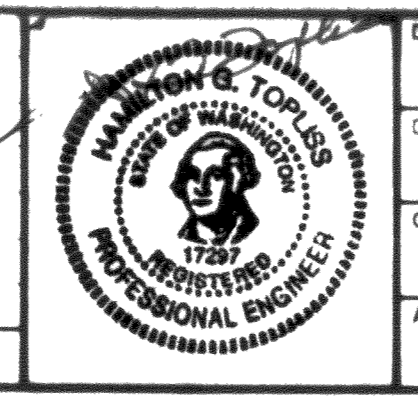
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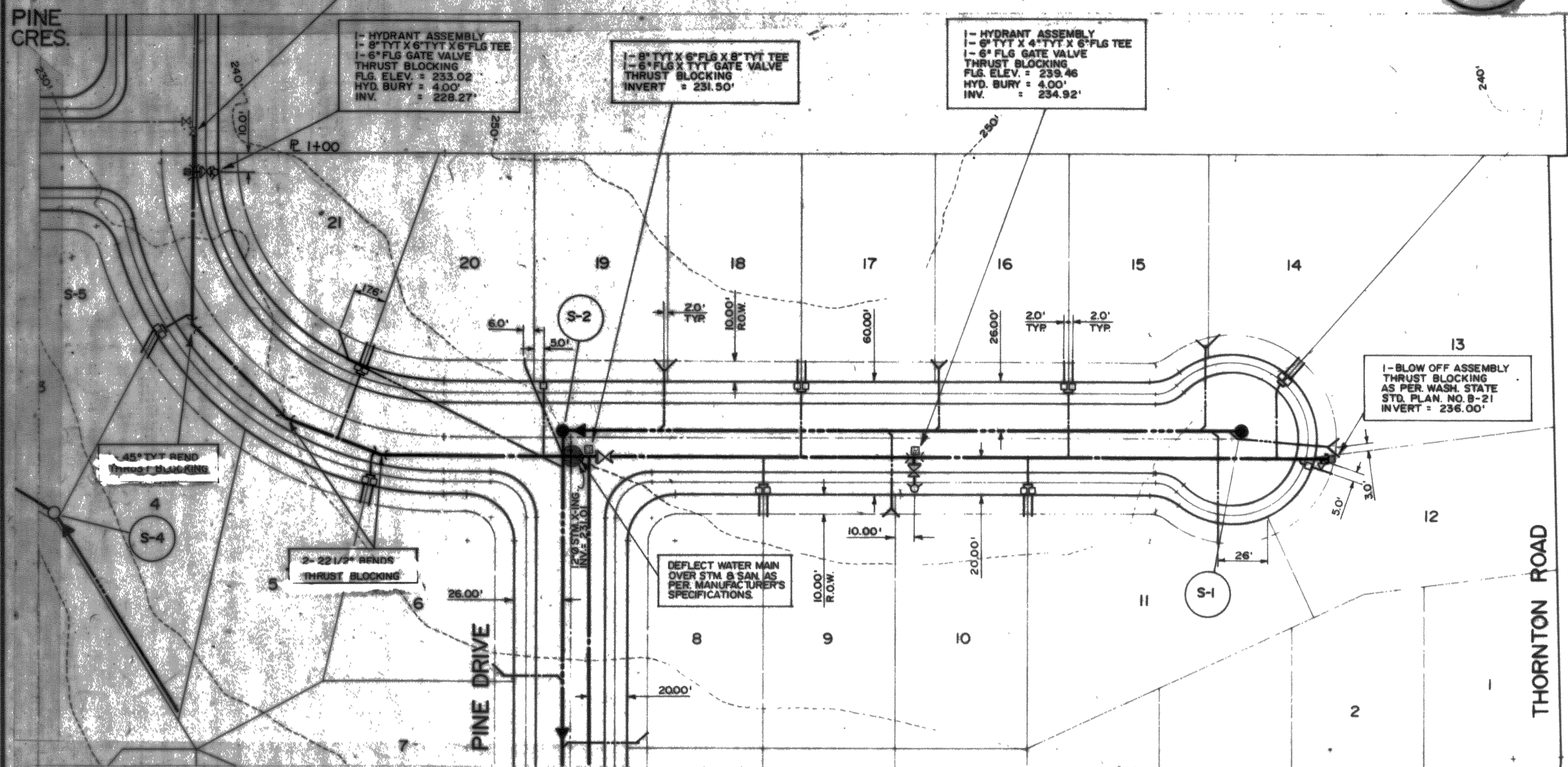
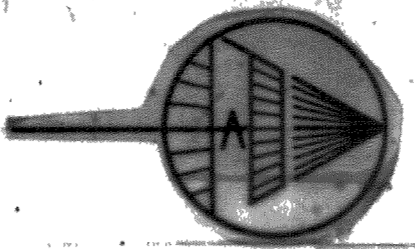
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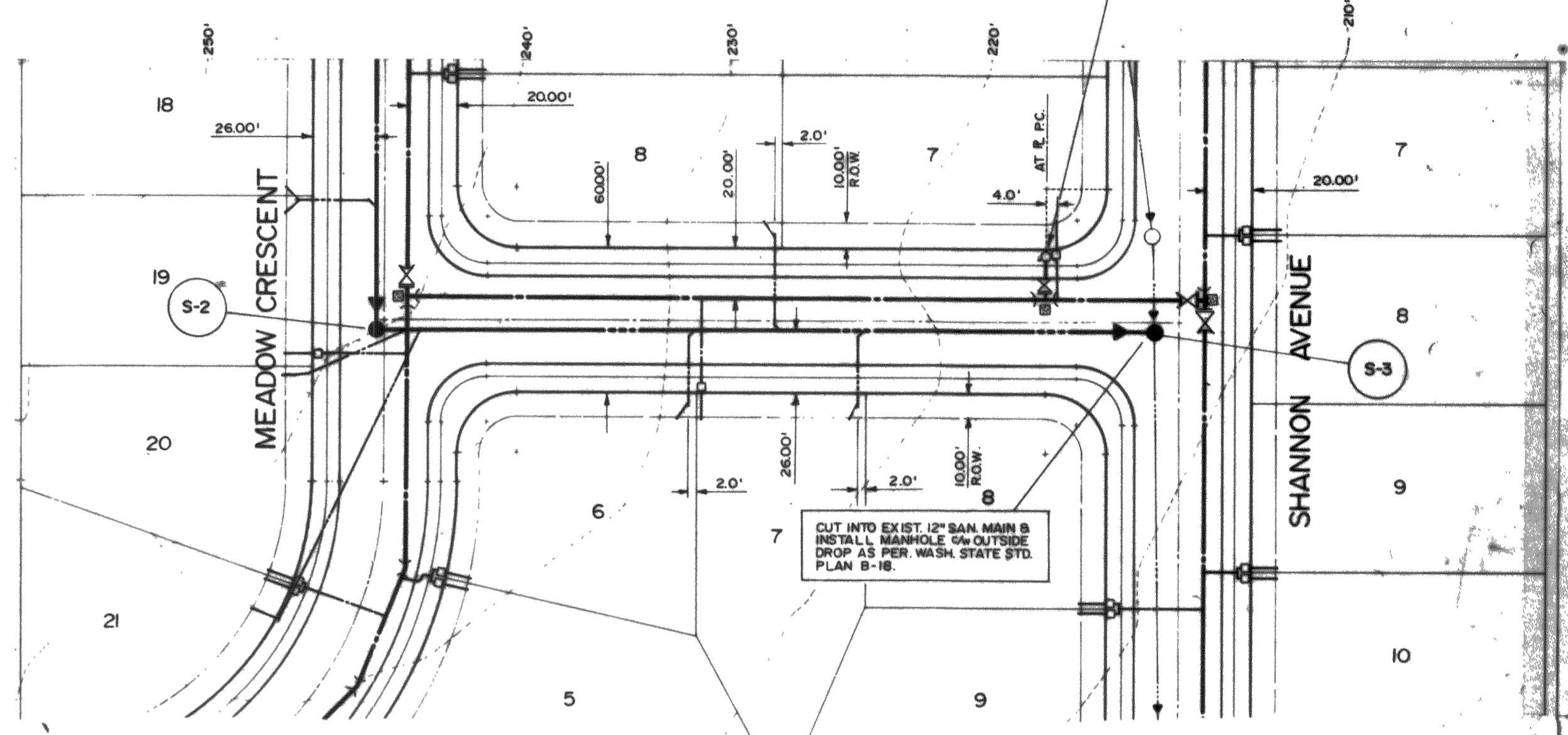
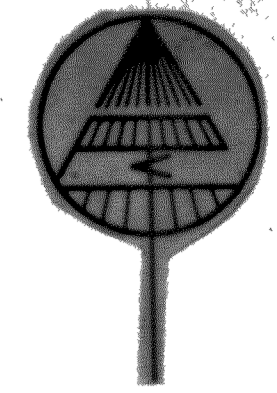
THORNTON TERRACE ESTATES		SCALE	1" = 50' HOR. 1" = 5' VER.
WATERWORKS & SANITARY SEWER SHANNON AVENUE		ISSUE DATE	AUG / 1991
		SHEET	6 OF 8
THORNTON ROAD, FERNDALE, WASHINGTON		DWG NO.	F9962
		ISSUE	D

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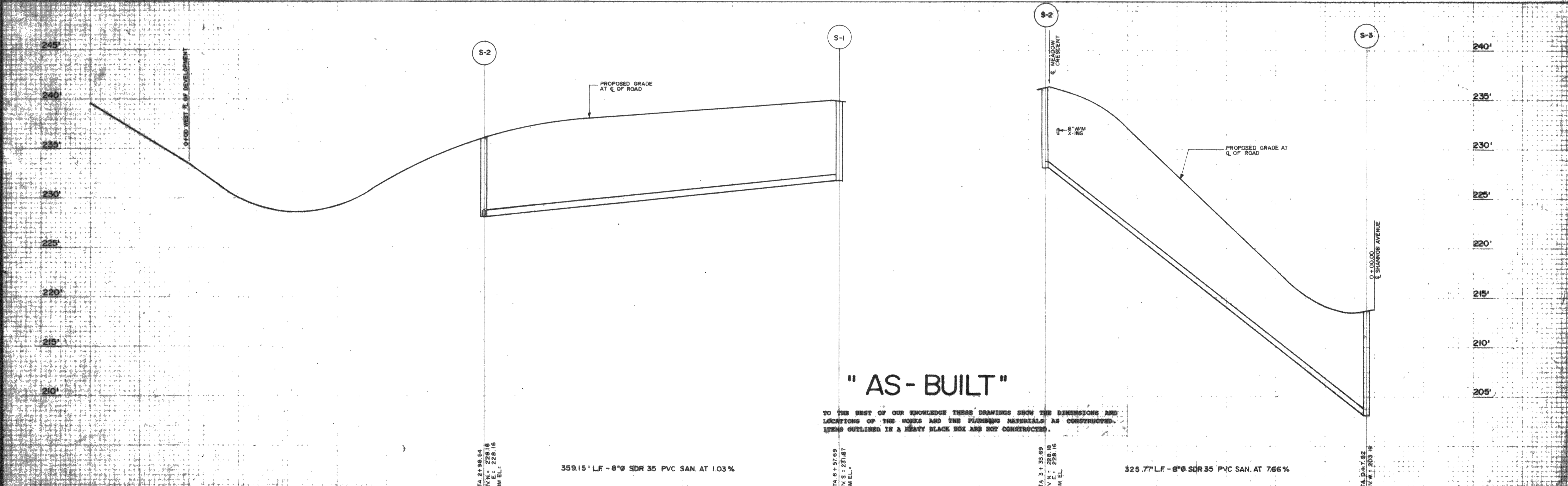
CONTRACTOR TO THE INTO EXIST. 6" W.M.
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MEADOW CRESCENT



PINE DRIVE



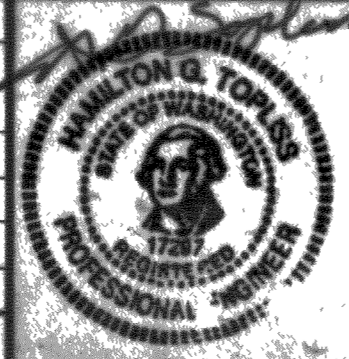
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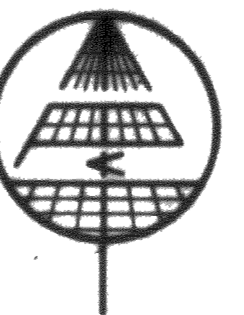
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00840.007 S.14.04 14

GENERAL NOTES

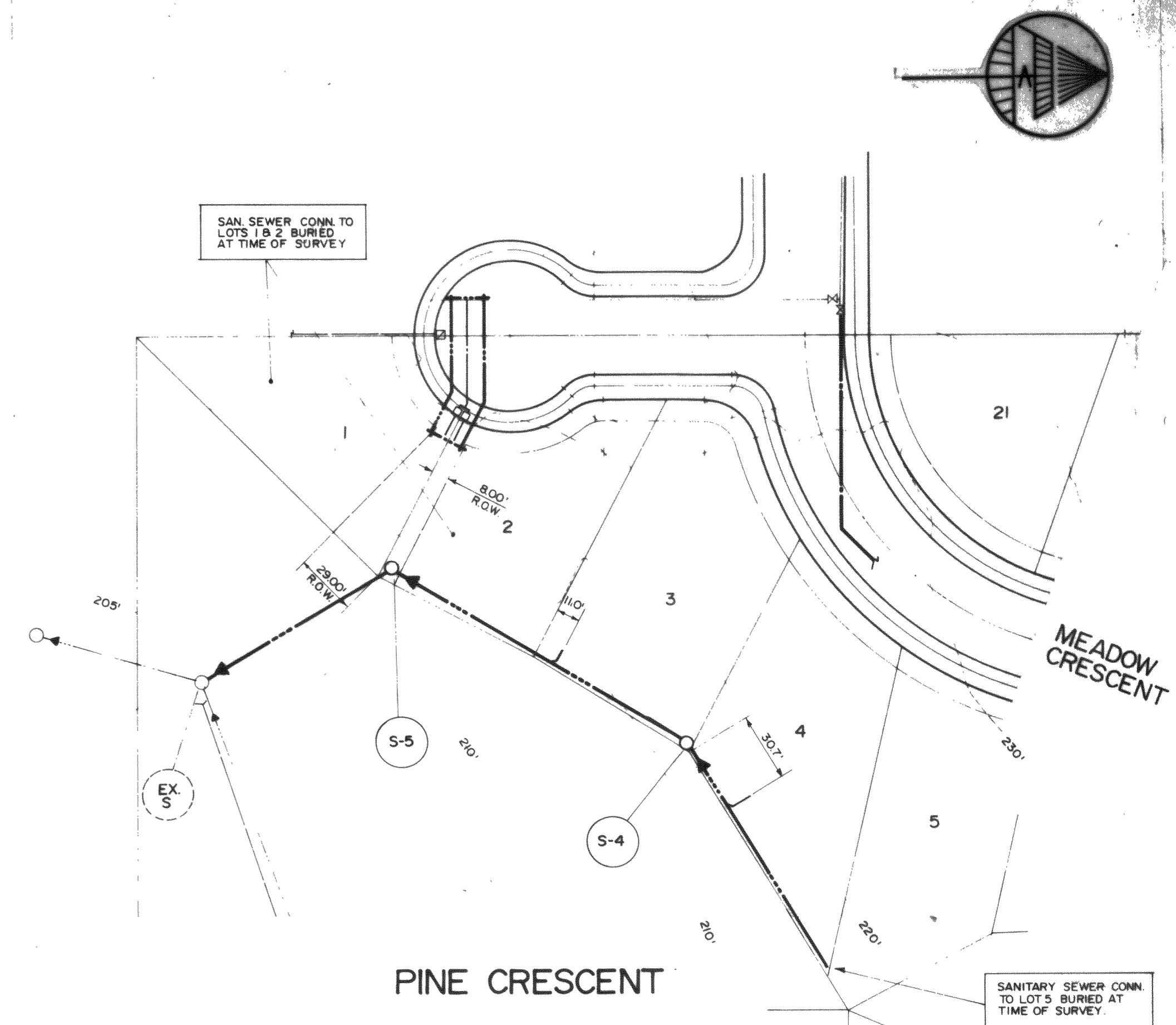
- ALL WORKS TO BE CONSTRUCTED IN ACCORDANCE WITH THE WSDOT 1991 STANDARD SPECIFICATIONS FOR ROAD, BRIDGE AND MUNICIPAL CONSTRUCTION AND WSDOT STANDARD PLANS FOR ROAD, BRIDGE AND MUNICIPAL CONSTRUCTION UNLESS OTHERWISE NOTED ON THE DRAWINGS OR INSTRUCTED BY THE ENGINEER.
- LOCATIONS OF EXISTING UTILITIES SHOWN ON THE PLANS ARE APPROXIMATE ONLY AND IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE EXACT LOCATIONS (HORIZONTALLY AND VERTICALLY) OF ALL UTILITIES PRIOR TO ANY CONSTRUCTION TO AVOID DAMAGE OR DISTURBANCE. ALL FINDINGS SHALL BE REPORTED TO MPT ENGINEERING INC. PRIOR TO ANY CONSTRUCTION.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ADEQUATE SAFEGUARDS, SAFETY DEVICES, PROTECTIVE EQUIPMENT, FLAGGERS AND ANY OTHER NEEDED ACTIONS TO PROTECT THE LIFE, HEALTH AND SAFETY OF THE PUBLIC AND TO PROTECT PROPERTY IN CONNECTION WITH THE PERFORMANCE OF WORK COVERED BY THE CONTRACTOR. ANY WORK WITHIN THE TRAVELLED RIGHT-OF-WAY THAT MAY INTERRUPT NORMAL TRAFFIC FLOW SHALL REQUIRE AT LEAST ONE FLAGGER FOR EACH LANE OF TRAFFIC AFFECTED. ALL SECTIONS OF THE WSDOT STANDARD SPECIFICATION 1-07.23 TRAFFIC CONTROL SHALL APPLY.
- CONTRACTOR MUST SUBMIT TO FERNDALE CITY HALL PROOF OF LIABILITY INSURANCE PRIOR TO CONSTRUCTION.
- CONTRACTOR NOT TO INSTALL SERVICES NOR WORK ON PRIVATE PROPERTY PRIOR TO WRITTEN APPROVAL FROM THE PROPERTY OWNER. APPROVAL TO BE OBTAINED BY DEVELOPER.
- REPORT ANY DISCREPANCIES TO THE ENGINEER PRIOR TO COMMENCEMENT OF CONSTRUCTION.
- UNDERGROUND SERVICE CROSSING INDICATED THUS:

WATERWORKS NOTES

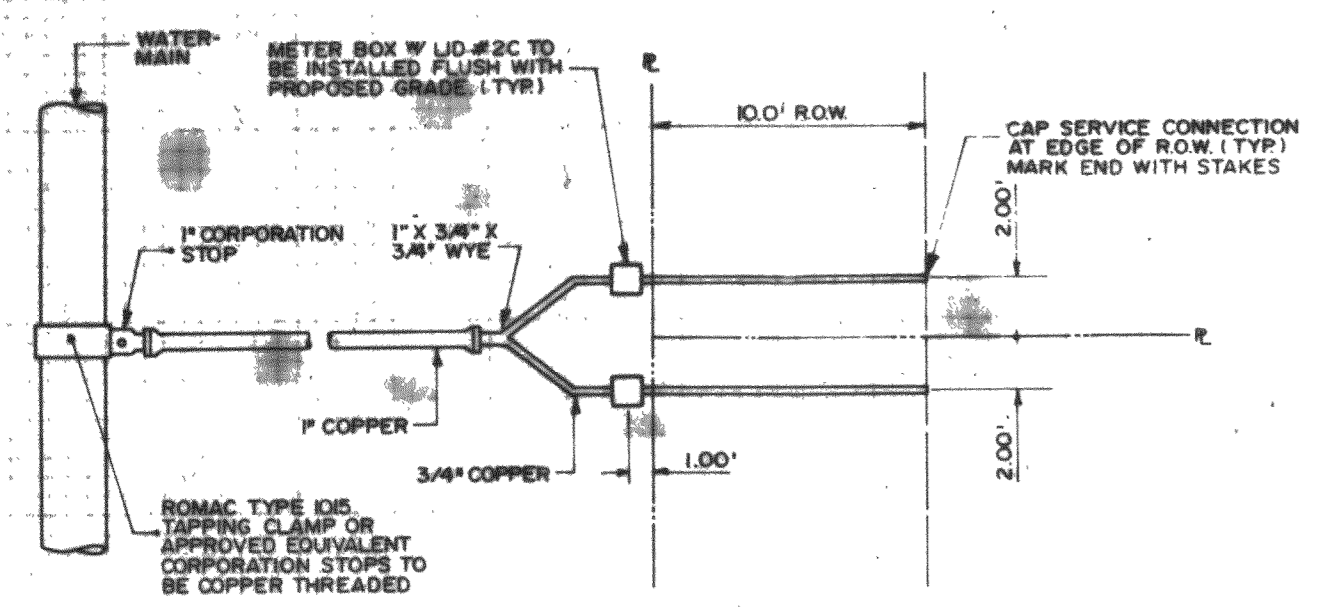
- ALL WATERMAIN EXCAVATION AND BACKFILL SHALL BE IN ACCORDANCE WITH WSDOT 1-10.
- ALL WATERMANS AND FITTINGS TO BE DUCTILE IRON AS PER WSDOT 9-30.1(1) AND 9-30.2(1) RESPECTIVELY.
- WATERMAIN TO BE DEFLECTED HORIZONTALLY AND/OR VERTICALLY AT THE JOINTS IN ORDER TO PROVIDE A MINIMUM 3 FEET OF COVER OVER THE PIPE AND SUFFICIENT CLEARANCE FOR STORM AND SANITARY SERVICE CONNECTIONS. MAXIMUM ALLOWABLE DEFLECTION PER JOINT TO BE AS PER MANUFACTURERS' PRINTED SPECIFICATIONS.
- WATERMAIN SHALL BE TESTED, FLUSHED AND CHLORINATED AS PER WSDOT STANDARD SPECIFICATIONS.

SANITARY NOTES

- ALL SANITARY SEWER PIPE AND FITTING TO BE PVC SDR 35 AS PER WSDOT 9-05.12
- ALL CHAINAGES RELATE TO CENTRELINE ASPHALT UNLESS OTHERWISE NOTED.
- ALL PIPE AND APPURTENANCES SHALL BE LAID ON A PROPERLY PREPARED FOUNDATION IN ACCORDANCE WITH WSDOT 7-17.3. THIS SHALL INCLUDE LEVELING AND COMPACTING THE TRENCH BOTTOM, THE TOP OF FOUNDATION MATERIALS AND ANY REQUIRED PIPE BEDDING TO A UNIFORM GRADE SO THAT THE ENTIRE PIPE IS SUPPORTED BY A UNIFORMLY UNYIELDING BASE. ALL LOT SERVICE CONNECTIONS ARE TO BE INSTALLED AT AN INVERT ELEVATION 3.5' LOWER THAN THE LOWEST FRONT LOT CORNER ELEVATION.

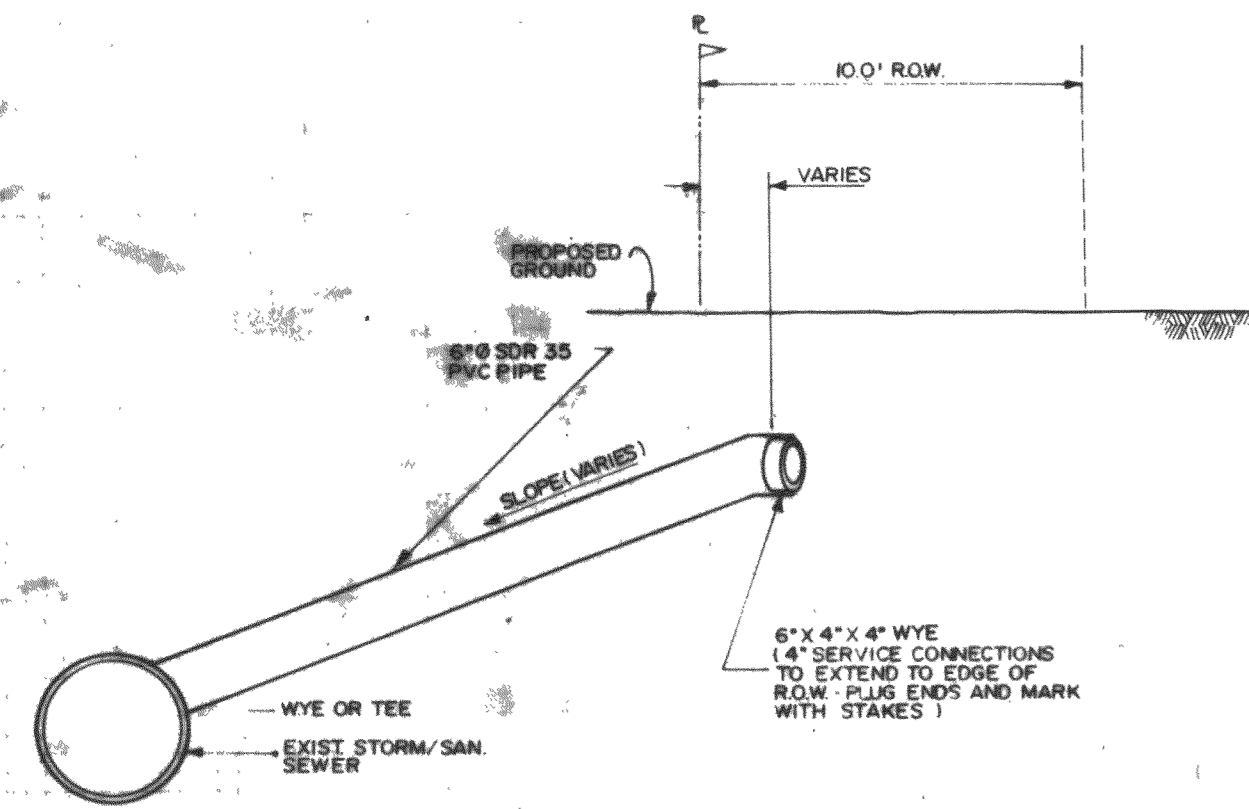


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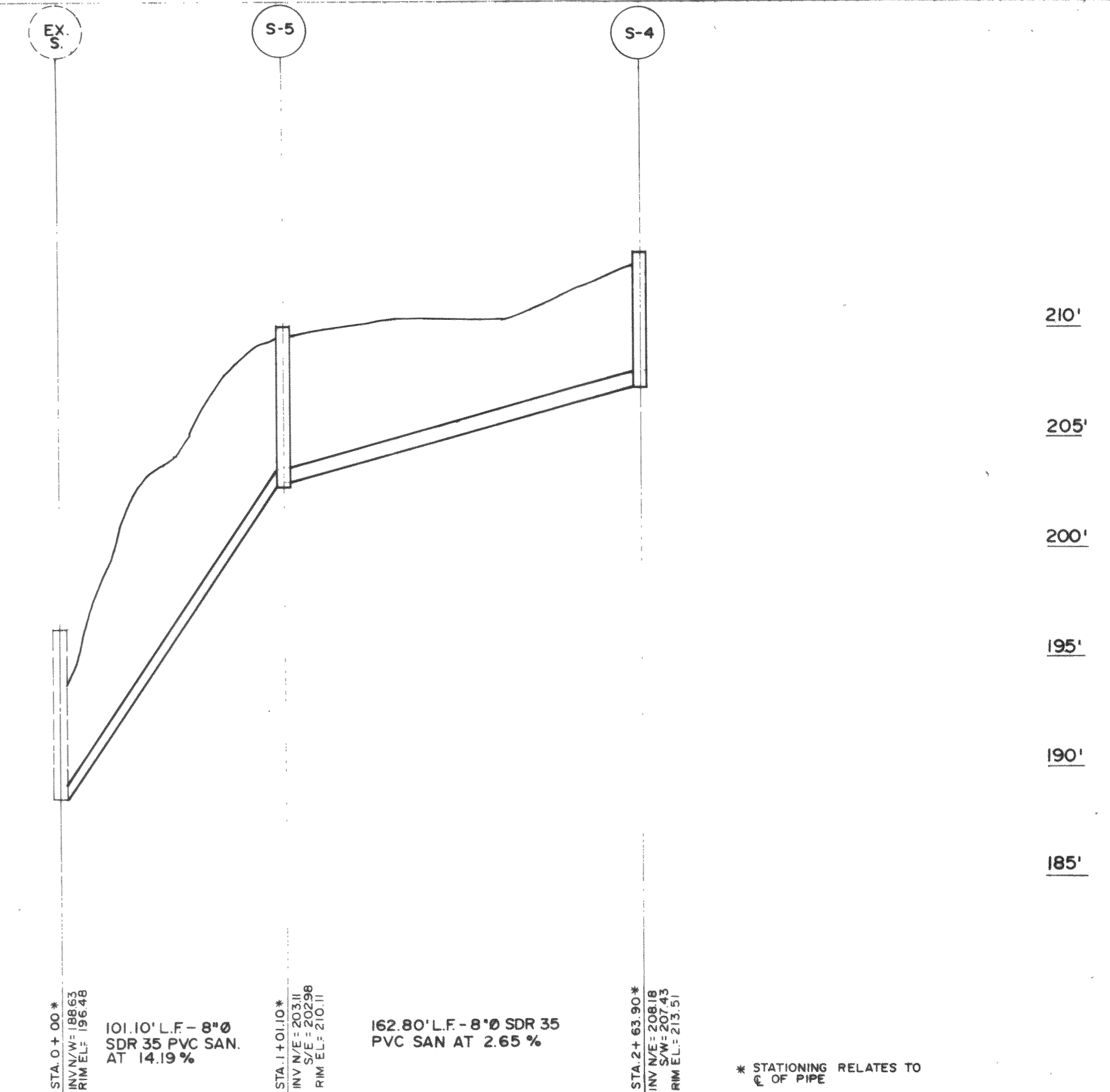


NOTE: ALL SERVICE CONNECTIONS MUST MAINTAIN A MIN 30\"/>

WATER SERVICE CONNECTION DETAIL
N.T.S.



SANITARY SERVICE CONNECTION DETAIL
N.T.S.



"AS-BUILT"

TO THE BEST OF OUR KNOWLEDGE THESE DRAWINGS SHOW THE DIMENSIONS AND LOCATIONS OF THE WORKS AND THE PLUMBING MATERIALS AS CONSTRUCTED. ERRORS OUTLINED IN A HEAVY BLACK BOX ARE NOT CONSTRUCTED.

BENCHMARK
ALL ELEVATIONS ARE DERIVED FROM THE FLANGE ELEVATION OF THE FIRE HYDRANT LOCATED AT LOT 1 EAST SIDE OF SHANNON AVENUE. ELEV. = 215.12'
CONTRACTOR TO CONFIRM LOCATION, INVERT AND SIZE OF EXISTING SERVICES/UTILITIES AND IMMEDIATELY NOTIFY M.P.T. ENGINEERING INC. OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION

ISSUE	DATE	DWN	CHK	REVISION
D	12 MAY/92	NL	DRK	ADDED "AS-BUILT"
C	2 DEC/91	NL	DSL	PRELIMINARY AS CONSTRUCTED
B	9 SEP/91	NL	DSL	GENERAL REVISIONS
A	15 AUG/91	NL	DSL	ISSUED FOR CITY APPROVAL



DESIGNED	DRK
DRAWN	NL
CHECKED	DSL
APPROVED	HGT

M.P.T. ENGINEERING INC.
210 - 8171 COOK ROAD
RICHMOND, B.C. V6Y 3T8 (604) 270-9331
CONSULTING ENGINEERS & LAND SURVEYORS

THORNTON TERRACE ESTATES
WATERWORKS & SANITARY SEWER
PINE CRESCENT /
NOTES & DETAILS
THORNTON ROAD, FERNDALE, WASHINGTON

SCALE	1" = 50' HOR 1" = 5' VER
ISSUE DATE	AUG/1991
SHEET OF	8 8
DWG NO	F9962
ISSUE	D