

STORM WATER POLLUTION PREVENTION PLAN - NARRATIVE & EROSION CONTROL DETAILS

PROJECT DESCRIPTION/LOCATION:

MSAP 156-127-003 IS LOCATED ON WEST AVENUE IN THE CITY OF RED WING, MN

PROJECT CONTACTS:

THE PROJECT ENGINEER AND CONTRACTOR ARE RESPONSIBLE FOR IMPLEMENTATION OF THE SWPP PLAN AND INSTALLATION, INSPECTION AND MAINTENANCE OF THE EROSION PREVENTION AND SEDIMENT CONTROL BMPs BEFORE AND DURING CONSTRUCTION. THE CITY OF RED WING IS RESPONSIBLE FOR LONG TERM OPERATION AND MAINTENANCE OF THE PERMANENT STORM WATER MANAGEMENT SYSTEM.

PROJECT ENGINEER
JAY OWENS, P.E.
229 TYLER ROAD NORTH
RED WING, MN 55066
651-385-3625

MPCA 24 HOUR EMERGENCY NOTIFICATION: 651-649-5451
800-422-0798

THE PROJECT INCLUDES:

- * WATERMAIN CONSTRUCTION
- * WATER SERVICE CONSTRUCTION
- * SANITARY SEWER CONSTRUCTION
- * SANITARY SEWER SERVICE CONSTRUCTION
- * STORM SEWER CONSTRUCTION
- * AGGREGATE BASE CONSTRUCTION
- * CONCRETE CURB & GUTTER CONSTRUCTION
- * CONCRETE SIDEWALK CONSTRUCTION
- * BITUMINOUS PAVEMENT CONSTRUCTION
- * CAST IN PLACE CONCRETE RETAINING WALL CONSTRUCTION
- * ELECTRICAL LIGHTING SYSTEM

CONSTRUCTION NOTES:

CONSTRUCTION SHALL BE GOVERNED BY THE MN/DOT SPEC BOOK (2005 EDITION) AND THE SPECIAL PROVISIONS. ANY OPEN SOIL SHOULD BE STABILIZED WITHIN (7) DAYS OF INACTIVITY.

PLANS:

THE PLANS SHOW THE PROJECT LIMITS, ALIGNMENT, STORM SEWER LOCATIONS, FLOW ARROWS, IMPERVIOUS SURFACES AND FINAL RESTORATIONS.

OUTSTANDING RESOURCE VALUE WATERS (ORVWs):

THERE ARE NO OUTSTANDING RESOURCE VALUE WATERS WITHIN THE PROJECT LIMITS OR WITHIN 2000 FEET OF THE PROJECT BOUNDARY.

CALCAREOUS FENS:

THERE ARE NO CALCAREOUS FENS WITHIN THE PROJECT LIMITS OR WITHIN 2000 FEET OF THE PROJECT BOUNDARY.

WETLANDS:

THERE ARE NO WETLANDS WITHIN THE PROJECT LIMITS OR WITHIN 2000 FEET OF THE PROJECT BOUNDARY.

RECEIVING SURFACE WATERS - DISCHARGE TO IMPAIRED WATERS & SPECIAL WATERS:

THE TABLE BELOW IDENTIFIES ALL SURFACE WATERS WITHIN 1 MILE OF THE DISTURBED SOIL PROJECT BOUNDARIES, WHICH WILL RECEIVE STORMWATER RUNOFF FROM THE CONSTRUCTION SITE, DURING OR AFTER CONSTRUCTION.

RECEIVING SURFACE WATERS		
NAME OF WATER BODY	SPECIAL WATER	IMPAIRED WATER
GOODHUE COUNTY		
MISSISSIPPI RIVER	NO	YES

LAND FEATURE CHANGES	
TOTAL PROJECT AREA DISTURBED	3.86 ACRES
TOTAL EXISTING IMPERVIOUS AREA	3.14 ACRES
TOTAL EXISTING PERVIOUS AREA	0.72 ACRES
TOTAL PROPOSED IMPERVIOUS AREA	3.14 ACRES
TOTAL PROPOSED PERVIOUS AREA	0.72 ACRES

TIMING OF BMP INSTALLATION:

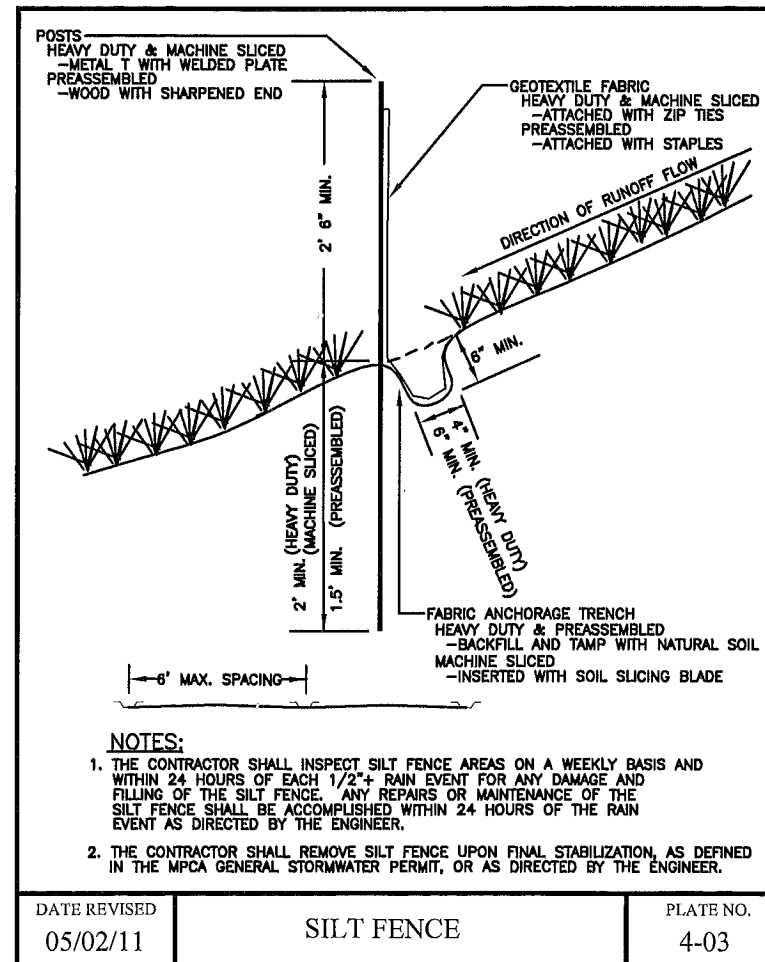
THE EROSION PREVENTION AND SEDIMENT CONTROL BMPs SHALL BE INSTALLED AS NECESSARY TO MINIMIZE EROSION FROM DISTURBED SURFACES AND CAPTURE SEDIMENT ONSITE, AND SHALL MEET THE NPDES PERMIT PART IV CONSTRUCTION ACTIVITY REQUIREMENTS.

POTENTIAL SOURCES OF POLLUTION:

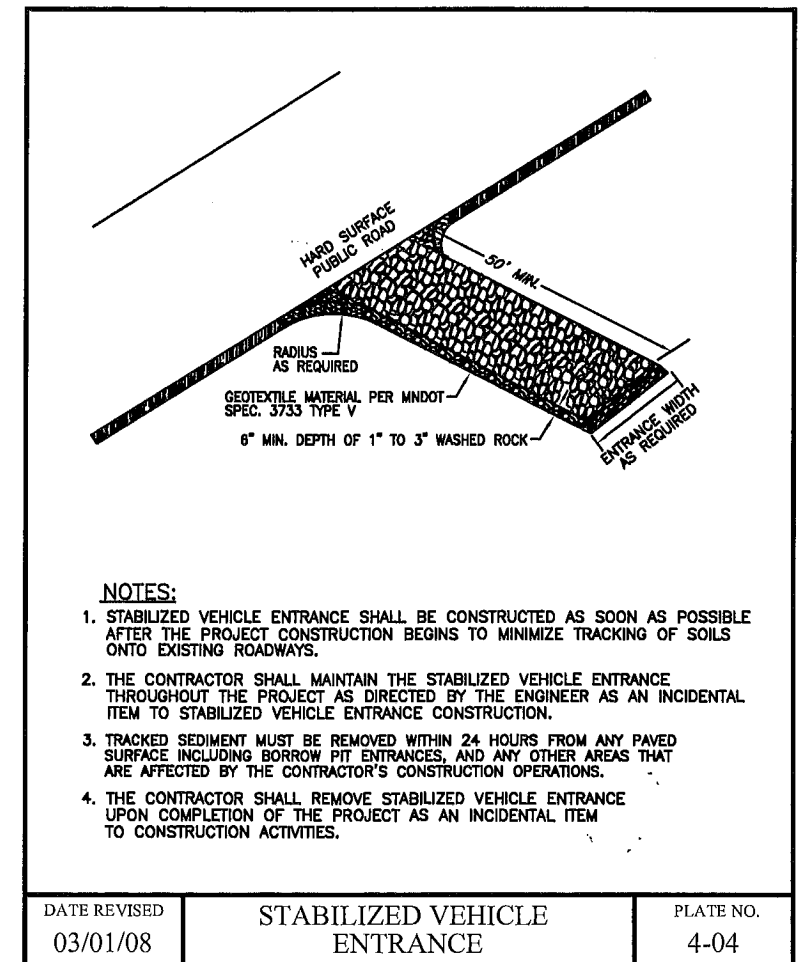
THERE ARE VARIOUS POTENTIAL SOURCES OF POLLUTION WHICH MAY INCLUDE: INSTALLATION OF SEDIMENT AND EROSION CONTROLS, INSTALLATION STABILIZED EXITS, VEHICLE TRACKING, CLEARING AND GRADING OPERATIONS, GRADING OPERATIONS, EXPOSED SOILS AND SLOPES, IMPORT/EXPORT OPERATIONS, UTILITY EXCAVATION OPERATIONS, LANDSCAPING OPERATIONS, TOPSOIL STRIPPING AND STOCKPILING.

POTENTIAL SOURCES OF POLLUTION		
MATERIAL TYPE	POLLUTANT	VISUALLY OBSERVE
CONCRETE (WET)	FLY ASH, HEAVY METALS, PORTLAND	WHITE SOLID
CONCRETE SAWING SLURRY	TURBIDITY AND PH	GRAY LIQUID
ASPHALT	ASPHALT FUMES, CUT BACK ASPHALT	BLACK MATERIAL
DIESEL FUEL	PETROLEUM DISTILLATES, NAPHTHALENE, XYLENE	SHEEN/STAIN
HYDRAULIC OIL	MINERAL OIL, TRACE ADDITIVES	SHEEN/STAIN
SEDIMENT	SOIL, TURBIDITY, DUST	MUDDY

LOCATION OF SWPP PLAN REQUIREMENTS	
DESCRIPTION	SHEETS
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SWPP PLAN CONST. ACTIVITY REQUIREMENTS	27
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DATE REVISED	PLATE NO.
05/02/11	4-03



DATE REVISED	PLATE NO.
03/01/08	4-04

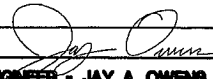
CERTIFIED BY *Jay Owens*
CITY ENGINEER - JAY A. OWENS
LICENSE NUMBER - 42020

TITLE: WEST AVENUE RECONSTRUCTION

STORM WATER POLLUTION PREVENTION PLAN - NARRATIVE & EROSION CONTROL DETAILS

STORM WATER POLLUTION PREVENTION PLAN - CONSTRUCTION ACTIVITY REQUIREMENTS

1. THE CONTRACTOR WILL NEED TO IDENTIFY A MN/DOT CERTIFIED EROSION CONTROL SUPERVISOR IN GOOD STANDING WHO WILL BE KNOWLEDGEABLE AND EXPERIENCED IN THE APPLICATION OF EROSION PREVENTION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICES.
2. THE EROSION CONTROL SUPERVISOR WILL WORK WITH THE PROJECT ENGINEER TO OVERSEE THE IMPLEMENTATION OF THE SWPPP, AND THE INSTALLATION, INSPECTION, AND MAINTENANCE OF THE EROSION PREVENTION AND SEDIMENT CONTROL BMPs BEFORE AND DURING CONSTRUCTION.
3. THE CONTRACTOR WILL DEVELOP A CHAIN OF COMMAND WITH ALL OPERATORS ON THE SITE TO ENSURE THAT THE SWPPP WILL BE IMPLEMENTED AND STAY IN EFFECT UNTIL THE CONSTRUCTION PROJECT IS COMPLETE, THE ENTIRE SITE HAS UNDERGONE FINAL STABILIZATION, AND A NOTICE OF TERMINATION (NOT) HAS BEEN SUBMITTED TO THE MPCA.
4. THE CONTRACTOR WILL PREPARE A WRITTEN WEEKLY SCHEDULE OF PROPOSED EROSION CONTROL ACTIVITIES FOR THE PROJECT ENGINEERS APPROVAL AS PER MN/DOT SPEC. 1717.2D.
5. THE CONTRACTOR WILL PREPARE AND SUBMIT A SITE PLAN FOR THE PROJECT ENGINEER'S APPROVAL AS PER MN/DOT SPEC. 1717.2E FOR WORK IN CRITICAL AREAS AS IDENTIFIED ON THE PLANS OR AS REQUESTED BY THE PROJECT ENGINEER.
6. ALL EROSION CONTROL MEASURES SHALL BE IN PLACE PRIOR TO ANY REMOVAL WORK AND/OR DISTURBING ACTIVITIES AND SHALL BE MAINTAINED UNTIL THE POTENTIAL FOR EROSION HAS BEEN ELIMINATED.
7. THE CONTRACTOR WILL STABILIZE ALL EXPOSED SOIL AREAS AS SOON AS POSSIBLE TO LIMIT SOIL EROSION BUT IN NO CASE LATER THAN (7) DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS TEMPORARILY OR PERMANENTLY CEASED. TEMPORARY STOCKPILES WITHOUT SIGNIFICANT SILT, CLAY OR ORGANIC COMPONENTS AND THE CONSTRUCTED BASE COMPONENTS OF ROADS, PARKING LOTS AND SIMILAR SURFACES ARE EXEMPT FROM THIS REQUIREMENT. HOWEVER, TEMPORARY STOCKPILES MUST HAVE SILT FENCE OR OTHER EFFECTIVE SEDIMENT CONTROLS, AND CANNOT BE PLACED IN SURFACE WATERS, INCLUDING STORMWATER CONVEYANCES SUCH AS CURB AND GUTTER SYSTEMS, OR CONDUITS AND DITCHES UNLESS THERE IS A BYPASS IN PLACE FOR THE STORMWATER.
8. WORK IN DRAINAGE SWALES OR THE NORMAL WETTED PERIMETER OF ANY SURFACE WATER WILL REQUIRE STABILIZATION WITHIN 24 HOURS OF CONNECTION. THESE AREAS WILL INCLUDE ALL AREAS THAT DRAIN WATER WITHIN 200 LINEAR FEET FROM THE PROPERTY EDGE OR POINT OF DISCHARGE TO ANY SURFACE WATER. RAPID STABILIZATION METHOD 4 WILL BE USED TO STABILIZE THESE AREAS.
9. OUTLETS INTO SURFACE WATERS SHALL BE STABILIZED WITH ENERGY DISSIPATION WITHIN 24 HOURS.
10. ALL AREAS NOT BEING WORKED FOR A PERIOD OF (7) DAYS OR MORE SHALL BE TEMPORARY STABILIZED WITH THE APPROPRIATE MEANS TO PREVENT SOIL LOSS.
11. DITCHES AND EXPOSED SOILS MUST BE KEPT IN A SMOOTH ROUGH GRADED CONDITION IN ORDER TO BE ABLE TO APPLY EROSION CONTROL MULCHES AND BLANKETS.
12. ALL EXPOSED SOIL AREAS WILL BE STABILIZED PRIOR TO THE ONSET OF WINTER. ANY WORK STILL BEING PERFORMED WILL BE SNOW MULCHED, SEEDED, OR BLANKETED.
13. SEDIMENT CONTROL DEVICES MUST BE ESTABLISHED ON ALL DOWN GRADIENT PERIMETERS BEFORE ANY UP GRADIENT LAND DISTURBING ACTIVITIES BEGIN. THE TIMING OF THE INSTALLATION OF THE SEDIMENT CONTROL DEVICES CAN BE ADJUSTED TO ACCOMMODATE SHORT-TERM ACTIVITIES SUCH AS CLEARING AND GRUBBING, OR PASSAGE OF VEHICLES. ANY SHORT TERM ACTIVITY MUST BE COMPLETED AS QUICKLY AS POSSIBLE AND THE SEDIMENT CONTROL DEVICES MUST BE INSTALLED IMMEDIATELY AFTER THE ACTIVITY IS COMPLETED OR PRIOR TO THE NEXT RAINFALL EVENT.
14. STREET SURFACES SHALL BE SWEEPED WITHIN 24 HOURS OF DISCOVERY OF SEDIMENT OR TRACKING WITH A VACUUM OPERATED BROOM SWEEPER. NO OPEN-BROOM SWEEPERS ALLOWED.
15. STORM SEWER INLETS WILL BE PROTECTED WITH THE APPROPRIATE BMPs FOR EACH SPECIFIC PHASE OF CONSTRUCTION.
16. THE CONTRACTOR WILL COMPLY WITH THE REQUIREMENTS REGARDING POLLUTION PREVENTION MANAGEMENT DURING CONSTRUCTION, WHICH WILL INCLUDE PROVIDING:
 - A. CONCRETE WASHOUT AREAS
 - B. SOLID WASTE COLLECTION AND REMOVAL
 - C. SECONDARY CONTAINMENT
 - D. HAZARDOUS WASTE STORAGE CONTAINERS AND SPILL KITS
17. DEWATERING OR BASIN DRAINING ACTIVITIES OF TURBID OR SEDIMENT LADEN WATER WILL BE DISCHARGED TO TEMPORARY SEDIMENT BASINS WHENEVER POSSIBLE. IN THE EVENT THAT IT IS NOT POSSIBLE TO DISCHARGE THE SEDIMENT LADEN WATER TO A TEMPORARY SEDIMENT BASIN THE WATER MUST BE TREATED SO THAT IT DOES NOT ADVERSELY AFFECT RECEIVING WATERS OR DOWNSTREAM LANDOWNERS. CONTACT THE PROJECT ENGINEER BEFORE ANY ON SITE DEWATERING OCCURS.
18. THE CONTRACTOR WILL NEED TO PROVIDE AN EROSION CONTROL SUPERVISOR WHO CAN INSPECT THE SITE FOR NPDES PERMIT COMPLIANCE. MAINTENANCE OF ALL BEST MANAGEMENT PRACTICES (BMPs) WILL BE REQUIRED AS SET FORTH IN THE PREVIOUSLY NAMED SECTIONS. THIS WORK IS CONSIDERED INCIDENTAL.
19. THE EROSION CONTROL SUPERVISOR WILL NEED TO ASSIST THE CITY WITH ROUTINE INSPECTIONS OF THE ENTIRE CONSTRUCTION SITE ONCE EVERY SEVEN DAYS DURING ACTIVE CONSTRUCTION AND WITHIN 24 HOURS AFTER A RAINFALL EVENT GREATER THAN 0.5 INCHES IN 24 HOURS. THE FOLLOWING WILL BE MAINTAINED ON SITE WITH THE SWPPP:
 - A. DATE AND TIME OF INSPECTIONS
 - B. NAME OF PERSONS CONDUCTING INSPECTIONS
 - C. CORRECTIVE ACTIONS TAKEN
 - D. DATE AND AMOUNT OF ALL RAINFALL EVENTS GREATER THAN 0.5 INCHES IN 24 HOURS
 - E. DOCUMENTS AND CHANGES MADE TO THE SWPPP
 - F. MAINTENANCE ACTIVITIES
20. MAINTENANCE WILL BE PERFORMED WITHIN A PERIOD OF 24 HOURS FROM A RAINFALL EVENT AND WILL BE COMPLETED AS FOLLOWS:
 - A. FLOATING SILT CURTAINS SHALL BE REPAIRED WHEN THEY BECOME NON-FUNCTIONAL
 - B. SILT FENCES SHALL BE REPAIRED WHEN THEY BECOME NON-FUNCTIONAL OR SEDIMENT REACHES 1/3 OF THE HEIGHT OF THE FENCE.
 - C. INLET PROTECTION DEVICES SHALL BE REPAIRED WHEN THEY BECOME NON-FUNCTIONAL OR SEDIMENT REACHES 1/3 THE HEIGHT AND/OR DEPTH OF THE DEVICE
 - D. TEMPORARY SEDIMENT BASIN MUST HAVE THE SEDIMENT REMOVED ONCE THE SEDIMENT HAS REACHED 1/2 THE STORAGE VOLUME WITHIN 72 HOURS OF DISCOVERY
 - E. TRACKED SEDIMENT MUST BE REMOVED WITHIN 24 HOURS OF DISCOVERY OF OFF SITE TRACKING ONTO PAVED SURFACES.
 - F. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING ALL BMPs UNTIL WORK HAS BEEN COMPLETED, SITE HAS UNDERGONE FINAL STABILIZATION, AND THE NOTICE OF TERMINATION HAS BEEN SUBMITTED TO THE MPCA IN ACCORDANCE WITH PART II.B.5 AND/OR PART II.C OF THE CONSTRUCTION GENERAL PERMIT.
21. BURNING OF TREES, BRUSH, OR OTHER VEGETATED MATERIAL IS NOT ALLOWED WITHIN THE PROJECT BOUNDARIES.
22. THE CONTRACTOR SHALL SUBMIT LOCATIONS OF ANY CONCRETE WASHOUT AREAS TO THE PROJECT ENGINEER FOR REVIEW AND APPROVAL. ALL LIQUID AND SOLID WASTES GENERATED BY CONCRETE WASHOUT OPERATIONS MUST BE CONTAINED IN A LEAK-PROOF CONTAINMENT FACILITY OR IMPERMEABLE LINER.
23. THE CONTRACTOR MAY SKIP TEMPORARY OR RAPID STABILIZATION METHODS IF THEY CHOOSE TO STABILIZE AN AREA WITH PERMANENT STABILIZATION IMMEDIATELY AFTER WORK IS COMPLETE.
24. ALL SEDIMENT DEPOSITED INTO A WATER OF THE STATE MUST BE REMOVED WITHIN 7 DAYS.
25. NO DIRECT COMPENSATION WILL BE MADE FOR COMPLIANCE WITH THE STORM WATER POLLUTION PREVENTION PLAN INCLUDING BUT NOT LIMITED TO MAINTENANCE AND REPAIR OF TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES, TEMPORARY STABILIZATION, CLEAN UP OF TRACKED SEDIMENT AND CLEAN UP OF ERODED MATERIAL. PAYMENT FOR THE INSTALLATION OF INDIVIDUAL EROSION CONTROL MEASURES IS AS TABULATED IN THE ESTIMATED QUANTITIES AND SUBJECT TO THE PROJECT SPECIFICATIONS AND SPECIAL PROVISIONS.

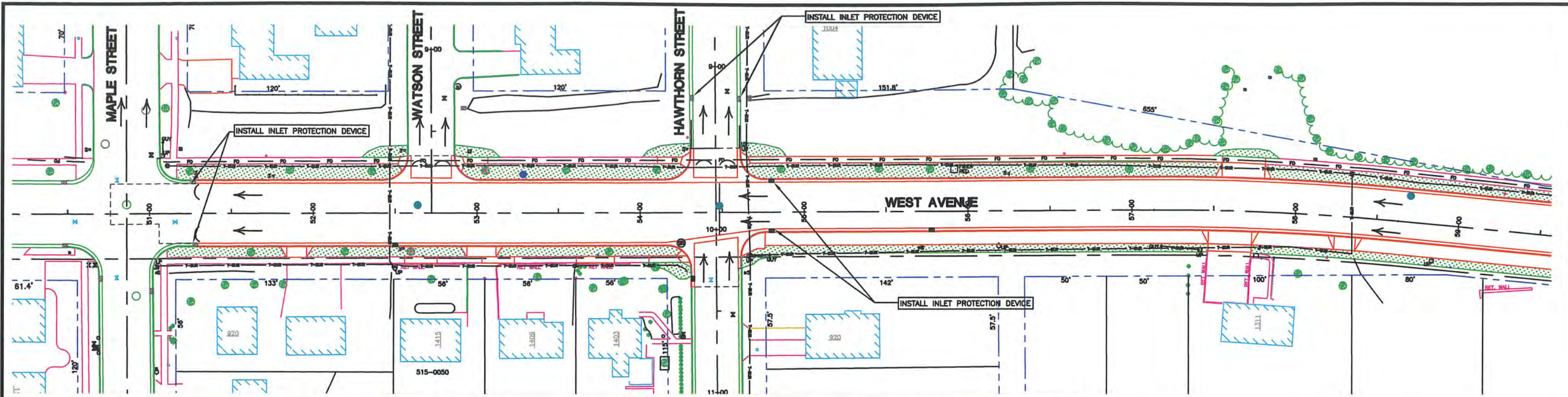
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TITLE: WEST AVENUE RECONSTRUCTION


STORM WATER POLLUTION
 PREVENTION PLAN -
 CONST. ACTIVITY REQUIREMENTS


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TURF ESTABLISHMENT

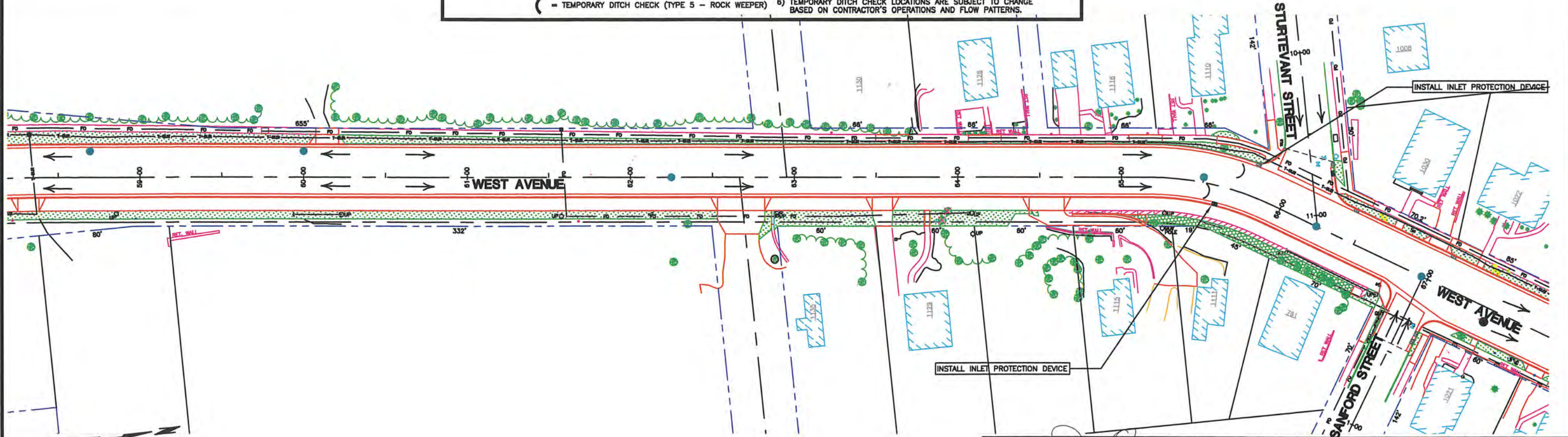
 6" TOPSOIL
 SEED MIXTURE #270 AT 240 LBS./ACRE.
 FERTILIZER, TYPE 1 AT 300 LBS./ACRE.
 HYDRAULIC SOIL STABILIZER, TYPE 5 AT 2100 LBS./ACRE.

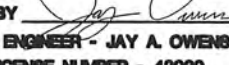
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 FERTILIZER, TYPE 1 AT 300 LBS./ACRE.
 EROSION CONTROL BLANKET-CATEGORY 4

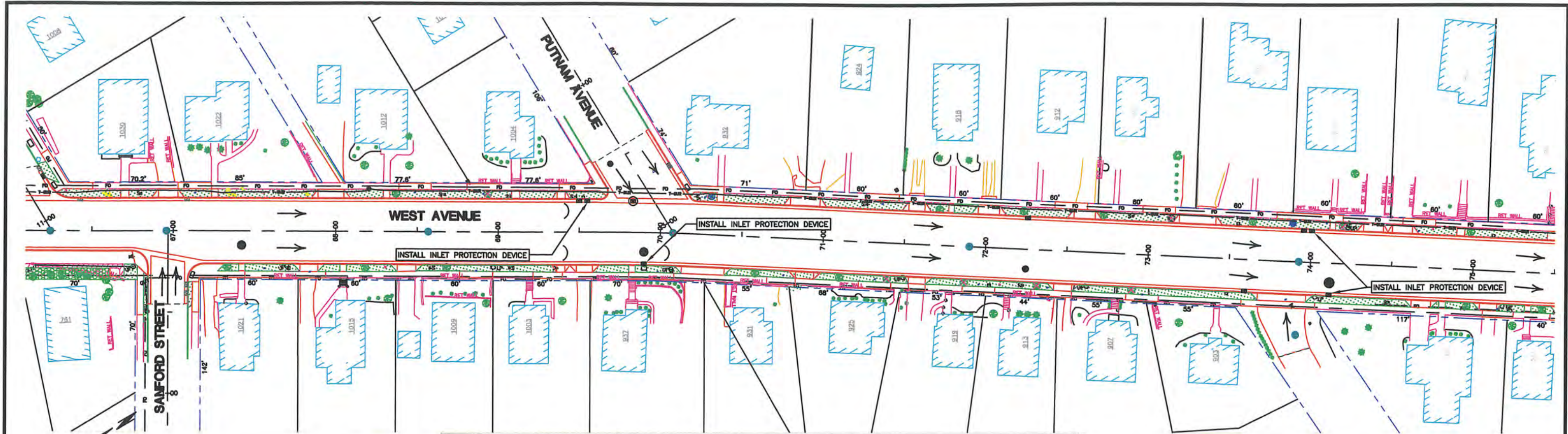
 = FLOW DIRECTION ARROW
 = TEMPORARY DITCH CHECK (TYPE 5 - ROCK WEEPER)

NOTES:


- 1) SILT FENCE WILL BE PLACED AS FIELD DETERMINED BY THE ENGINEER.
- 2) INLET PROTECTION SHALL BE MAINTAINED UNTIL FINAL STABILIZATION OF ALL ERODABLE SLOPES WITHIN INLET WATERSHED.
- 3) ADDITIONAL INLET PROTECTION MAY BE PLACED AS FIELD DETERMINED BY THE ENGINEER.
- 4) SANDBAG BARRIER WILL BE PLACED AS FIELD DETERMINED BY THE ENGINEER.
- 5) STABILIZED VEHICLE ENTRANCE LOCATIONS WILL BE FIELD DETERMINED BY THE ENGINEER TO COORDINATE WITH THE CONTRACTOR'S OPERATIONS.
- 6) TEMPORARY DITCH CHECK LOCATIONS ARE SUBJECT TO CHANGE BASED ON CONTRACTOR'S OPERATIONS AND FLOW PATTERNS.





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TURF ESTABLISHMENT


 6" TOPSOIL
 SEED MIXTURE #270 AT 240 LBS./ACRE.
 FERTILIZER, TYPE 1 AT 300 LBS./ACRE.
 HYDRAULIC SOIL STABILIZER, TYPE 5 AT 2100 LBS./ACRE.

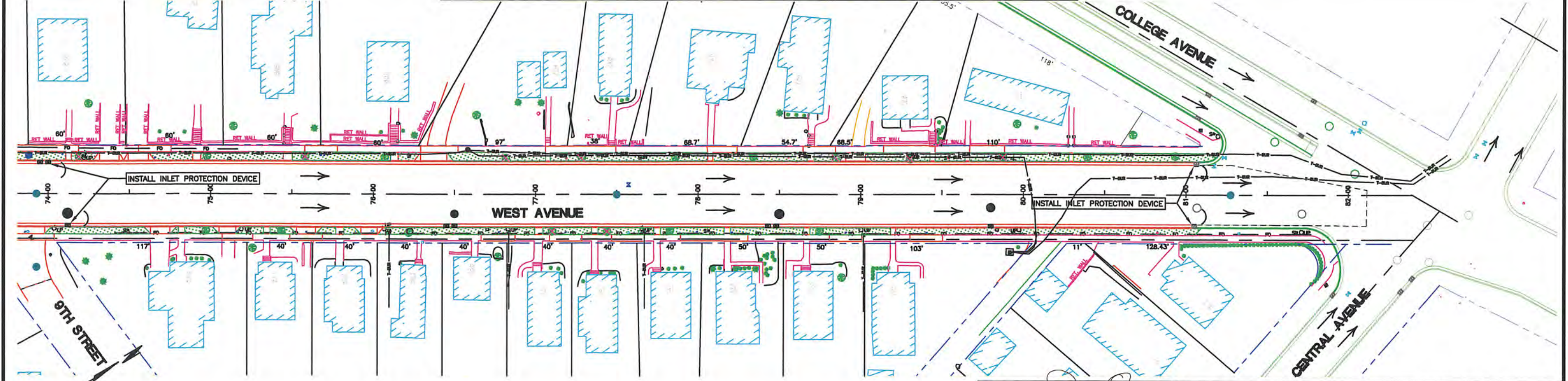

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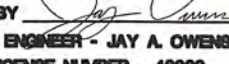
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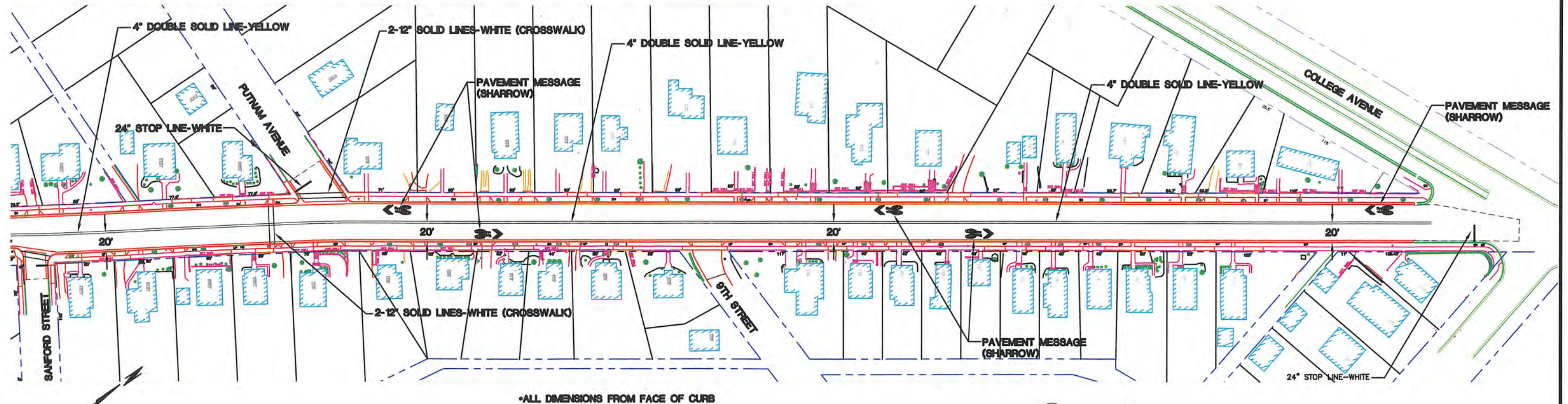
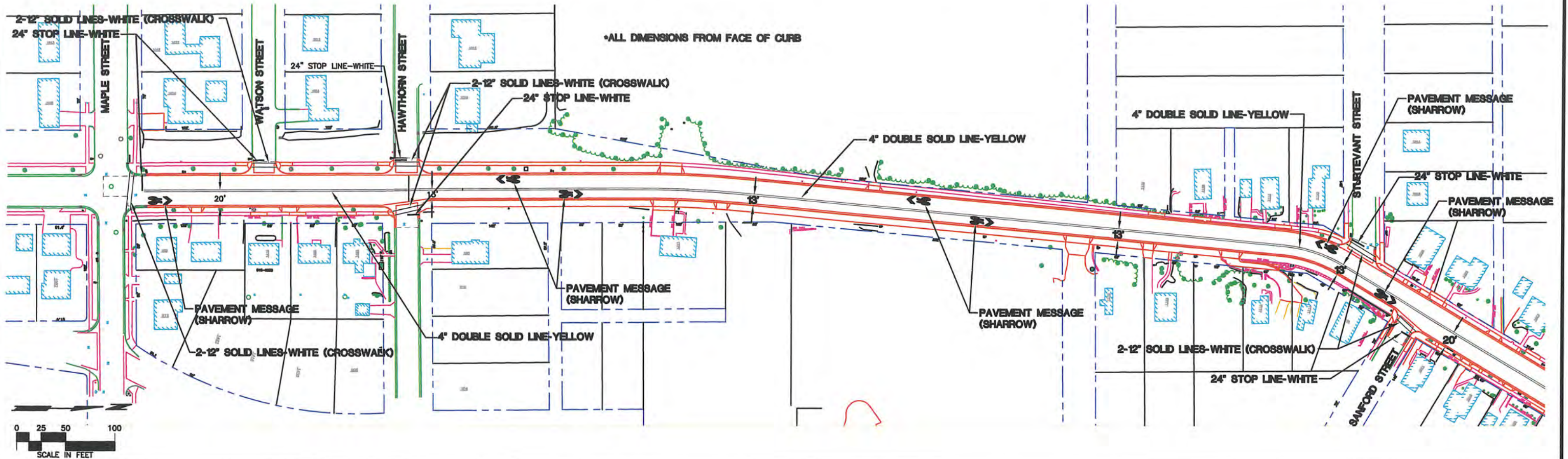
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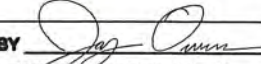
NOTES:

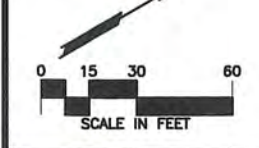
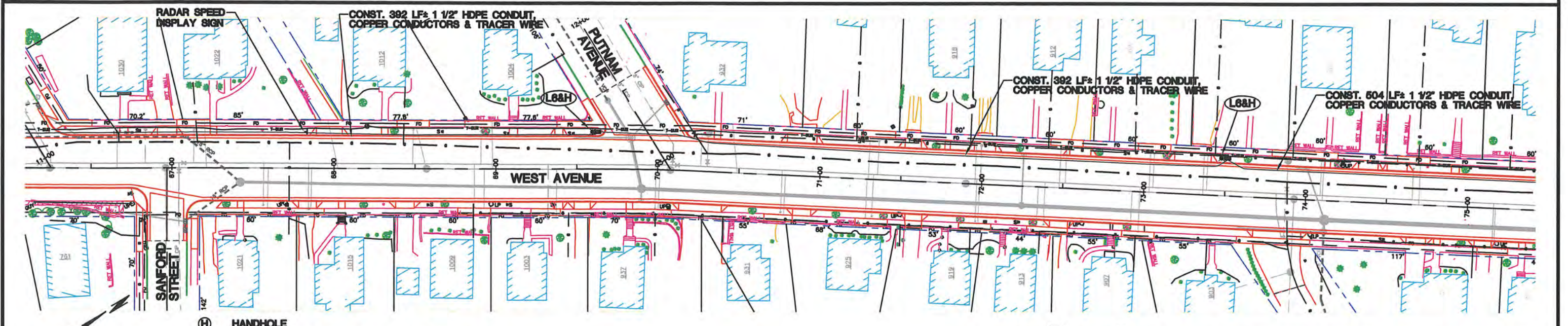
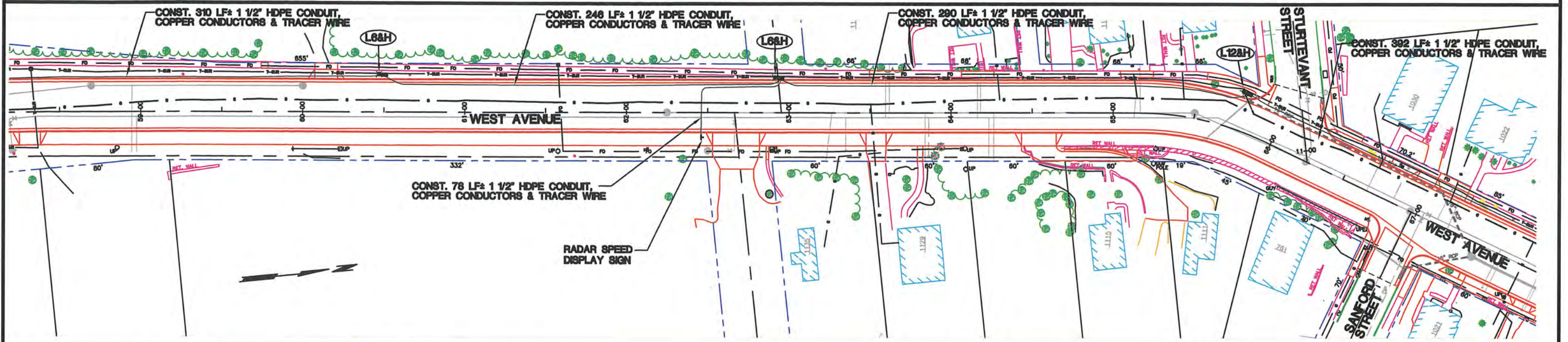
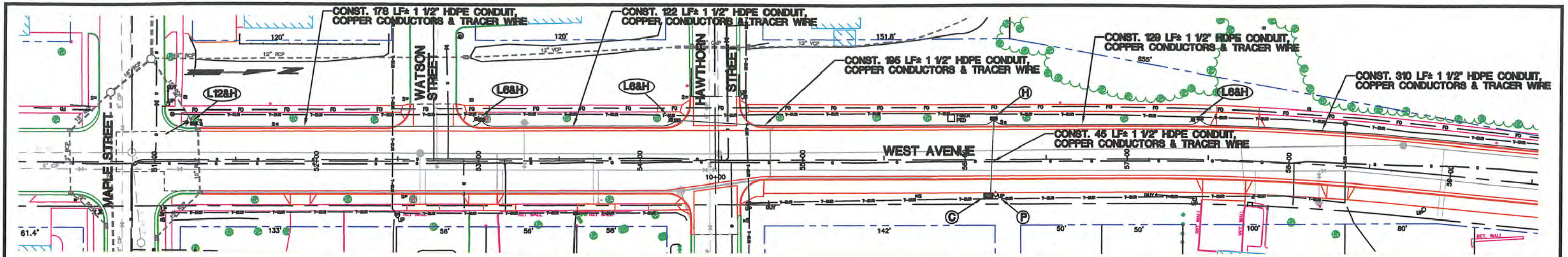
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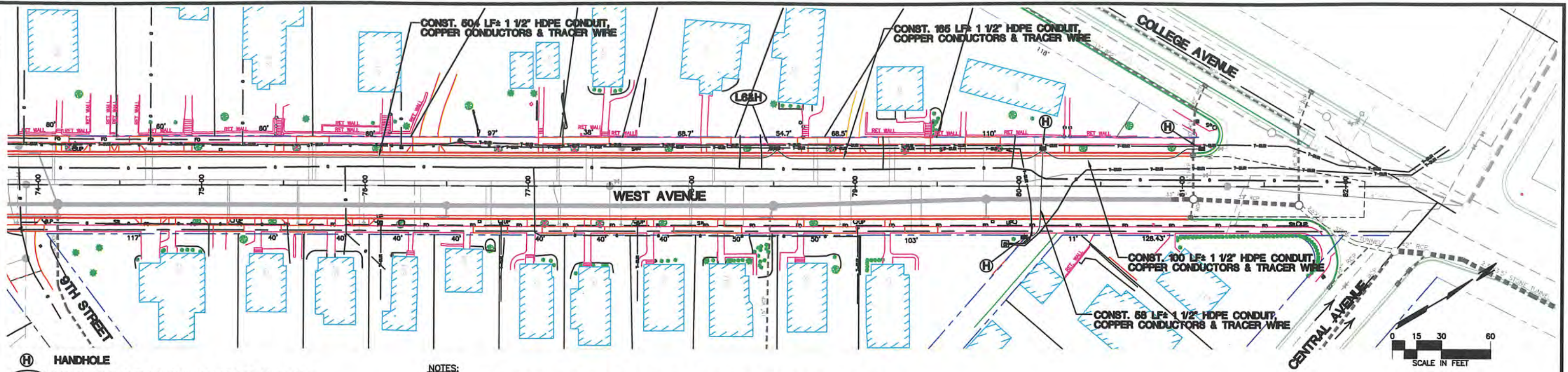


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- (H) HANDHOLE
- (L6&H) LIGHT POLE UNIT W/ 6' MAST ARM & HANDHOLE
- (L12&H) LIGHT POLE UNIT W/ 12' MAST ARM & HANDHOLE
- (C) METER/CONTROL CABINET
- (P) SOURCE OF POWER

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		ELECTRICAL SYSTEM PLAN
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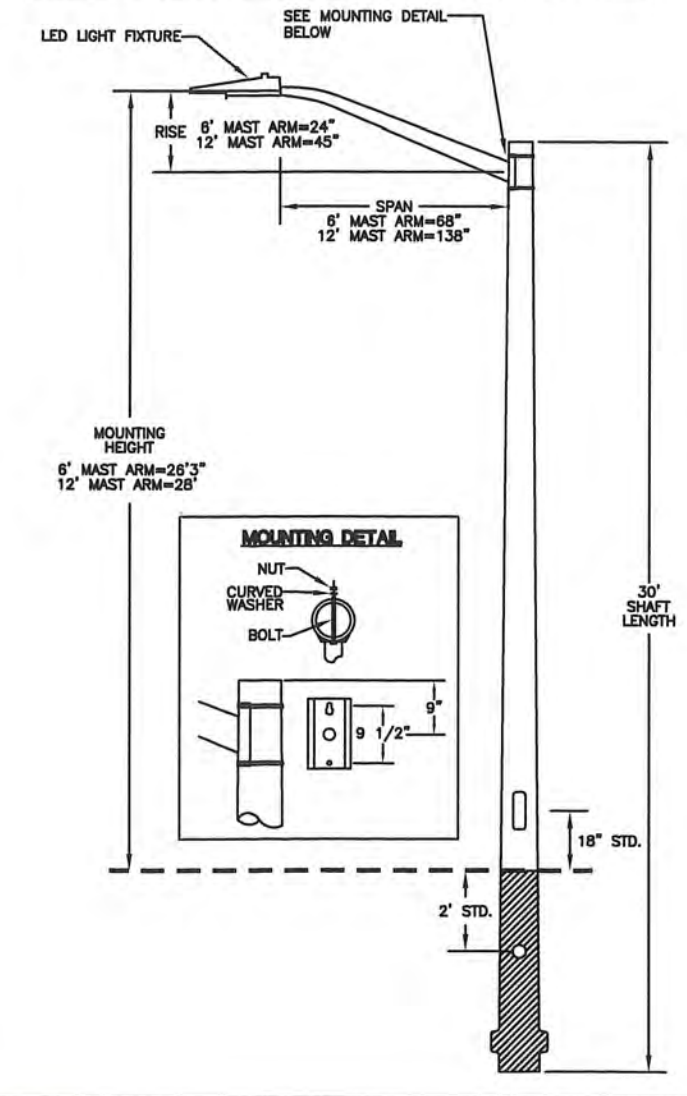


- (H) HANDHOLE
- (L68H) LIGHT POLE UNIT W/ 6' MAST ARM & HANDHOLE
- (L128H) LIGHT POLE UNIT W/ 12' MAST ARM & HANDHOLE
- (C) METER/CONTROL CABINET
- (P) SOURCE OF POWER

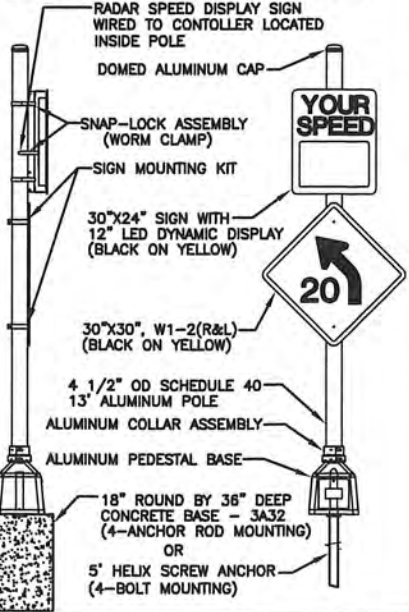
- NOTES:**
- 1.) THE CONTRACTOR SHALL UTILIZE A MASTER ELECTRICIAN TO SIZE COPPER CONDUCTORS WITH XHHW INSULATION PER THE NATIONAL ELECTRIC CODE. THIS DESIGN SHALL BE APPROVED BY THE CITY OF RED WING ELECTRICIAN.
 - 2.) LIGHT POLE UNITS, HANDHOLES AND RADAR DISPLAY SPEED SIGNS ARE GENERALLY SHOWN IN THEIR PROPER LOCATION. FINAL LOCATIONS SHALL BE FIELD STAKED BY THE CITY OF RED WING ELECTRICIAN.
 - 3.) CONDUIT WITH EXTERNAL TRACER WIRE SHALL BE INSTALLED AT A DEPTH OF 36" ALONG ALIGNMENTS AS SHOWN, ADJUSTMENTS TO ALIGNMENT AND/OR DEPTH SHALL BE APPROVED BY THE CITY OF RED WING ELECTRICIAN.
 - 4.) THE CONTRACTOR SHALL COORDINATE WITH THE CITY OF RED WING ELECTRICIAN AND XCEL ENERGY TO PERFORM FINAL CONNECTIONS WITH SOURCE OF POWER.
 - 5.) THE METER/CONTROL CABINET SHALL BE MOUNTED ON A 4" THICK, 1.5'X2' CONCRETE BASE-MIX 3A32.
 - 6.) THE RADAR SPEED DISPLAY SIGNS SHALL BE ON A SEPARATE CIRCUIT AND NOT CONNECTED TO PHOTO CELL CONTROLLING THE STREET LIGHTING SYSTEM.

- ELECTRIC LIGHT SYSTEM QUANTITIES:**
- 2 EACH - LIGHT POLE UNIT WITH 12' MAST ARM & LED LIGHT FIXTURE
 - 8 EACH - LIGHT POLE UNIT WITH 6' MAST ARM & LED LIGHT FIXTURE
 - 14 EACH - HANDHOLE
 - 3,204± L.F. - 1 1/2" HDPE CONDUIT WITH TRACER WIRE & APPROPRIATE COPPER CONDUCTORS
 - 1 EACH - METER/CONTROL CABINET WITH CONCRETE BASE
 - 2 EACH - RADAR SPEED DISPLAY SIGN WITH APPROPRIATE MOUNTING, ANCHORING & SIGNAGE

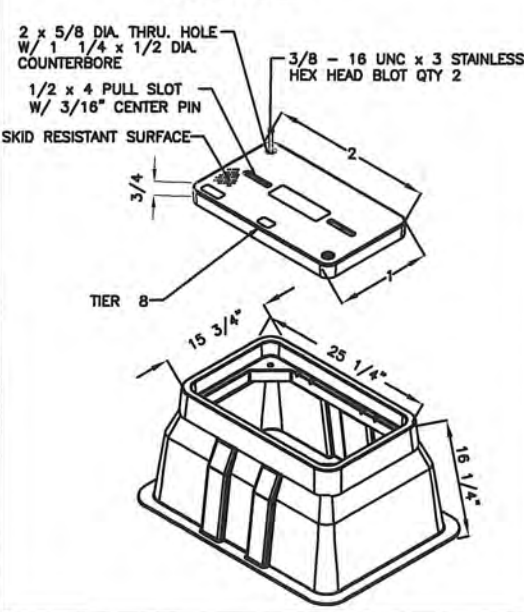
POLE, MAST ARM & LED LIGHT FIXTURE ASSEMBLY



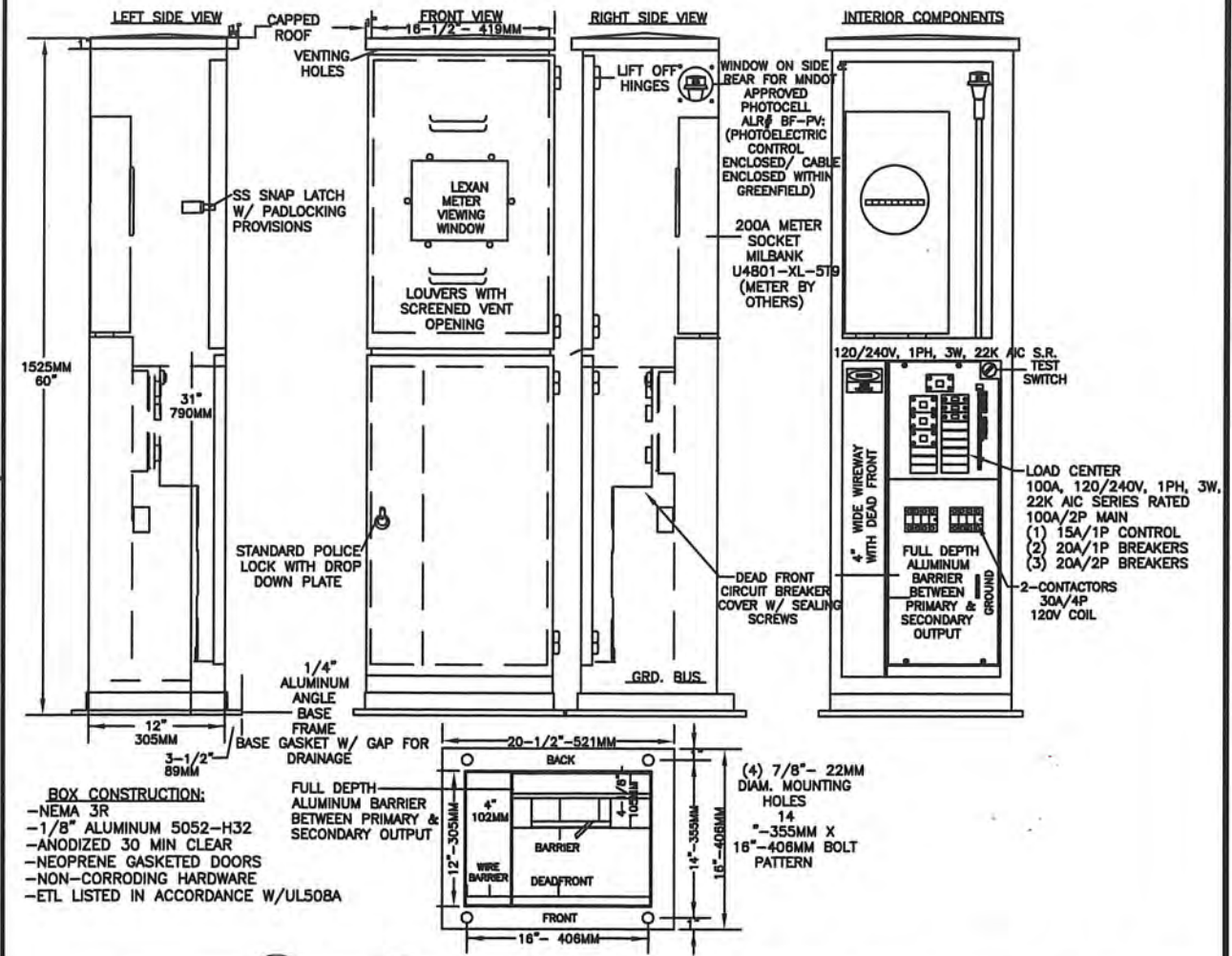
RADAR SPEED DISPLAY SIGN



HANDHOLE



METER/CONTROL CABINET



BOX CONSTRUCTION:
 -NEMA 3R
 -1/8" ALUMINUM 5052-H32
 -ANODIZED 30 MIN CLEAR
 -NEOPRENE GASKETED DOORS
 -NON-CORRODING HARDWARE
 -ETL LISTED IN ACCORDANCE W/UL508A

THE CONTRACTOR SHALL VERIFY AND BE RESPONSIBLE FOR ALL DIMENSIONS AND LOCATIONS. DO NOT SCALE THE DRAWING. ANY ERRORS OR OMISSIONS SHALL BE REPORTED IMMEDIATELY TO THE DESIGNER. THE DESIGNER SHALL BE RESPONSIBLE FOR THE ACCURACY OF THE INFORMATION PROVIDED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS.

SUMMARY OF QUANTITIES FOR RETAINING WALL			
ITEM NO.	ITEM	UNIT	QUANTITY
①	2105.522	SELECT GRANULAR BORROW MOD 10% (LV)	CU. YD. 581
⑥	2401.601	FOUNDATION PREPARATION	LUMP SUM 1
	2402.583	ORNAMENTAL METAL RAILING TYPE SPECIAL	LIN. FT. 40 (P)
	2411.501	STRUCTURAL CONCRETE (1A43)	CU. YD. 267 (P)
⑤	2411.501	STRUCTURAL CONCRETE (3Y43)	CU. YD. 222 (P)
	2411.541	REINFORCEMENT BARS	POUND 15650 (P)
	2411.541	REINFORCEMENT BARS (EPOXY COATED)	POUND 24860 (P)
③	2411.601	DRAINAGE SYSTEM	LUMP SUM 1
	2411.618	ARCHITECTURAL SURFACE FINISH (MULTI COLOR)	SQ. FT. 1206 (P)
⑤	2411.618	ARCHITECTURAL CONCRETE TEXTURE (DRystack STONE)	SQ. FT. 1206 (P)
④	2451.501	STRUCTURE EXCAVATION CLASS U	CU. YD. 1242 (P)
②	2451.509	AGGREGATE BEDDING (CV)	CU. YD. 97

NOTES:

- ① A COMPACTION FACTOR OF 130% WAS USED TO DETERMINE THE LV.
- ② AGGREGATE BEDDING PER MnDOT SPEC 3149.2G
- ③ INCLUDES WRAPPED 4" DIA. PERFORATED DRAIN PIPE BEHIND ENTIRE LENGTH OF WALL, ALL CONNECTIONS AND APPURTENANCES, AND SURFACE DRAIN AS SHOWN ON SHEET 47.
- ④ "STRUCTURE EXCAVATION CLASS U" SHALL INCLUDE THE EXCAVATION OF ALL MATERIALS ENCOUNTERED CONSISTING OF (BUT NOT LIMITED TO) OLD FILL, BOULDERS, WEATHERED ROCK, AND BEDROCK TO AN ELEVATION 1'-0" BELOW BOTTOM OF PROPOSED FOOTING (SEE SHEET 35).
- ⑤ CONCRETE VOLUME WITHIN THE FORMLINER IS NOT INCLUDED IN THE QUANTITY FOR ITEM "STRUCTURAL CONCRETE (3Y43)" AND SHALL BE CONSIDERED INCIDENTAL TO ITEM "ARCHITECTURAL CONCRETE TEXTURE (DRystack STONE)".
- ⑥ ITEM "FOUNDATION PREPARATION" INCLUDES ALL WORK AND COSTS ASSOCIATED WITH TEMPORARY SHORING, STABILIZING EXCAVATIONS, AND REMOVAL OF EXISTING WALLS AS NECESSARY FOR CONSTRUCTION OF NEW WALL. SEE WALL X-SECTIONS SHEETS 48 - 51.

ABBREVIATIONS:

B.F.	BACK FACE	FTG.	FOOTING
B.M.	BENCHMARK	INTERM.	INTERMITTENT
BOT.	BOTTOM	MAX.	MAXIMUM
BRG.	BEARING	MIN.	MINIMUM
CLR.	CLEAR	MOD.	MODIFIED
CONC.	CONCRETE	NOM.	NOMINAL
CONST.	CONSTRUCTION	R/W	RIGHT-OF-WAY
DIA.	DIAMETER	SPA.	SPACES, SPACING
E.F.	EACH FACE	STA.	STATION
EL.	ELEVATION	(TYP.)	TYPICAL
F.F.	FRONT FACE	W.P.	WORKING POINT

CONSTRUCTION NOTES:

THE 2005 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN.

EXISTING AND PROPOSED UTILITIES ARE SHOWN IN THE GRADING PLANS. FIELD VERIFY ALL UTILITIES.

ALL EXCAVATION AND EMBANKMENT WORK SHALL CONFORM TO SPEC. 2451.

ALL CONCRETE SHALL CONFORM TO SPEC. 2461.

THE CONTRACTOR SHALL SUBMIT THE PROPOSED POURING SEQUENCE AT LEAST 2 WEEKS PRIOR TO BEGINNING THE FIRST POUR. CURVED FORMS SHALL BE USED FOR CURVED PORTIONS OF THE WALL.

REINFORCEMENT BARS SHALL BE DEFORMED BILLET STEEL BARS CONFORMING TO SPEC. 3301, GRADE 60 AND EPOXY COATED EXCEPT AS NOTED.

THE BAR SIZES SHOWN IN THIS PLAN ARE IN U.S. CUSTOMARY DESIGNATIONS.

BARS MARKED WITH THE SUFFIX "E" SHALL BE EPOXY COATED. ALL BARS WHICH COME OUT OF THE FOOTING AND ALL BARS WHICH ARE ABOVE THE FOOTING SHALL BE EPOXY COATED.

ALL BAR DIMENSIONS ARE GIVEN OUT-TO-OUT.

DESIGN DATA

2002 AND CURRENT INTERIM AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES

LOAD FACTOR DESIGN METHOD FOR CONCRETE

MAXIMUM ALLOWABLE DESIGN STRESSES:

REINFORCED CONCRETE:
 $f_c = 4$ K.S.I. $N = 8$
 $f_y = 60$ K.S.I. FOR REINFORCEMENT

WORKING STRESS DESIGN FOR STABILITY, FOUNDATION

BACKFILL CHARACTERISTICS:
 INTERNAL ANGLE OF FRICTION: 35°
 UNIT WEIGHT: 125 PCF
 $\beta_e = 1.0$
 Kearth pressure: 33 PCF
 Klive load surcharge: 66 PSF

FOOTING DESIGN BEARING PRESSURE: 3000 PSF
 COEFFICIENT OF FRICTION: 0.55

LIST OF SHEETS

NO.	SHEET TITLE
33	ELEVATION VIEW & SUMMARY OF QUANTITIES
34	GENERAL PLAN & PROFILE
35	TYPICAL WALL SECTIONS
36 - 43	PANEL DETAILS
44	REBAR DIAGRAMS & JOINT DETAILS
45	STEPPED FOOTING DETAILS
46	ORNAMENTAL METAL RAILING DETAILS
47	SURFACE DRAIN DETAILS
48 - 51	CROSS SECTIONS



I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

SIGNATURE: *Ronald Benson*
 PRINT NAME: RONALD BENSON
 DATE: 3/14/14 LICENSE NO. 22737

APPROVED: *[Signature]*
 RED WING CITY ENGINEER

DATE: 3/14/14

WEST AVENUE CITY OF RED WING
 GOODHUE COUNTY
 MINNESOTA DEPARTMENT OF TRANSPORTATION

CAST-IN-PLACE CONCRETE RETAINING WALL
 LOCATED ON WEST AVENUE GOING SOUTH FROM THE JUNCTION WITH SANFORD STREET IN THE CITY OF RED WING.

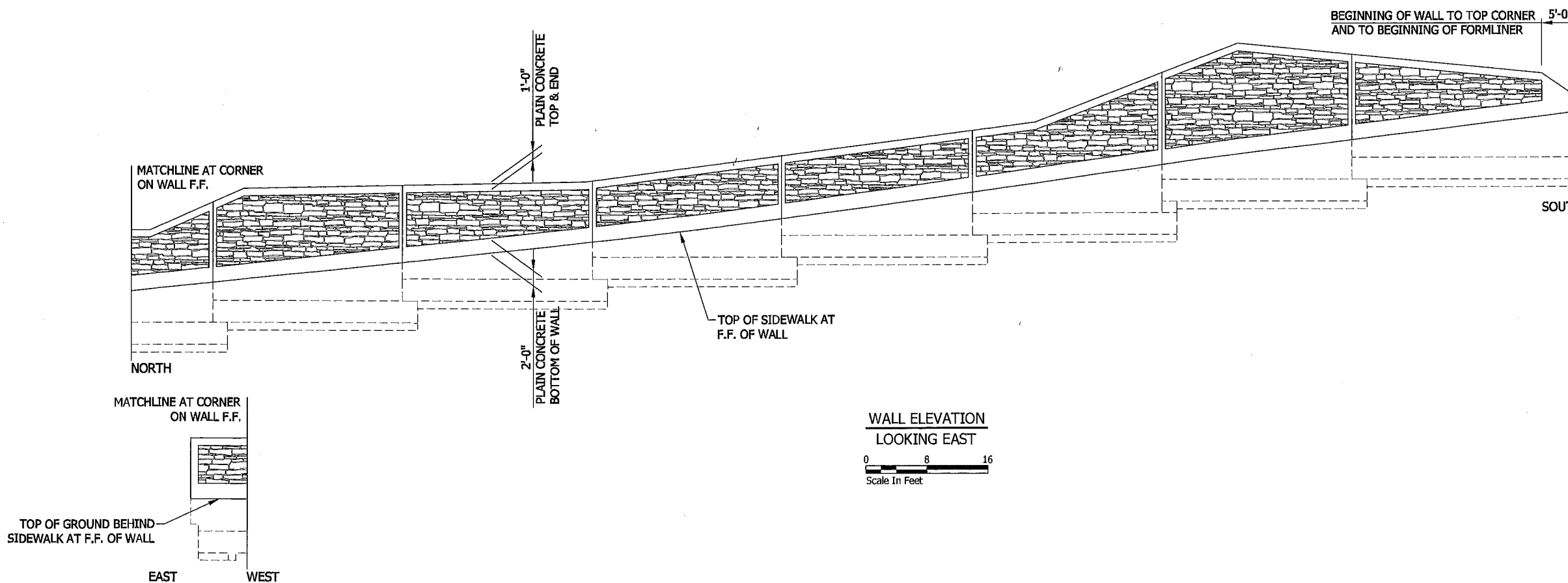
ELEVATION VIEW & SUMMARY OF QUANTITIES

CITY OF RED WING GOODHUE COUNTY

S.P. 156-127-003

DES: BLF DR: AMH
 CHK: AMH CHK: BLF

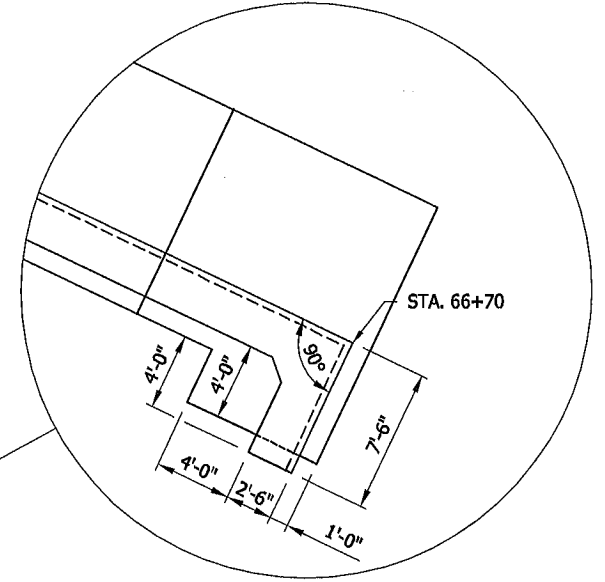
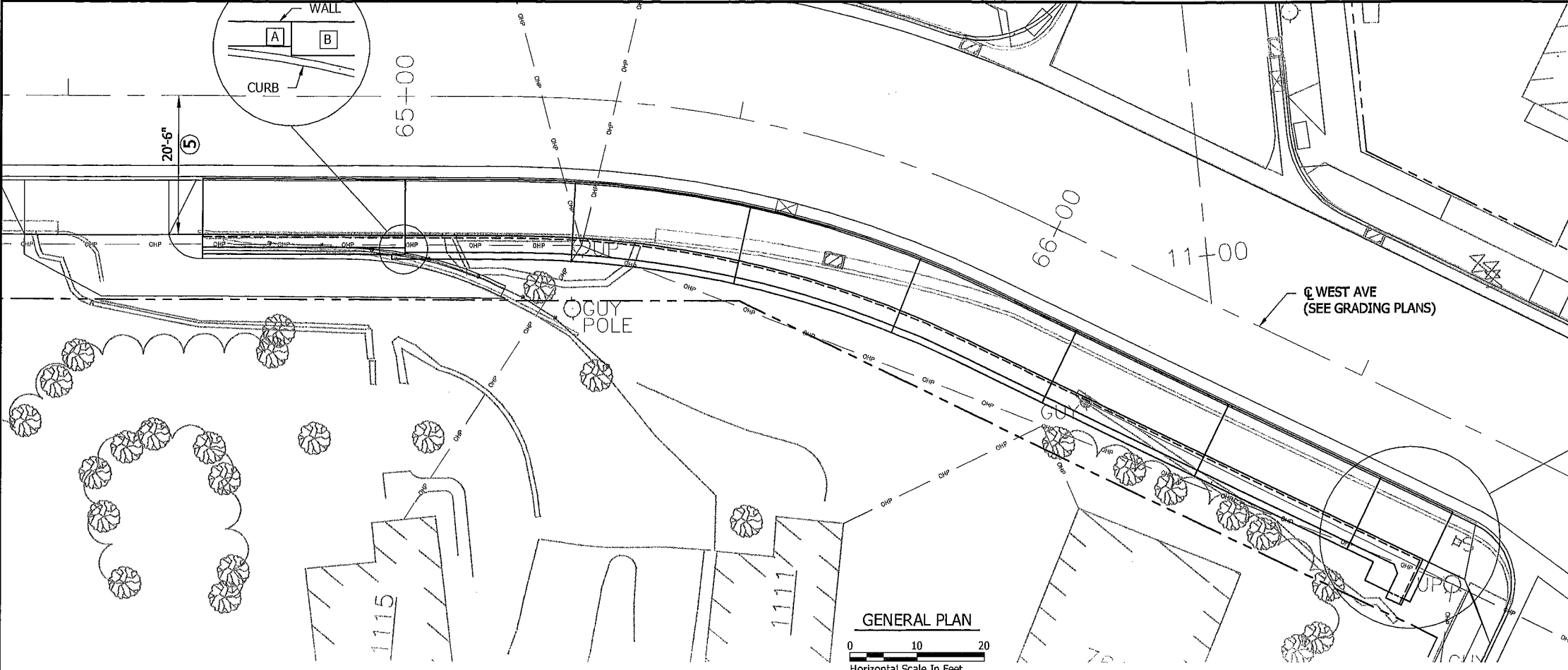
SHEET NO. 33 OF 51



**WALL ELEVATION
 LOOKING EAST**
 0 8 16
 Scale In Feet

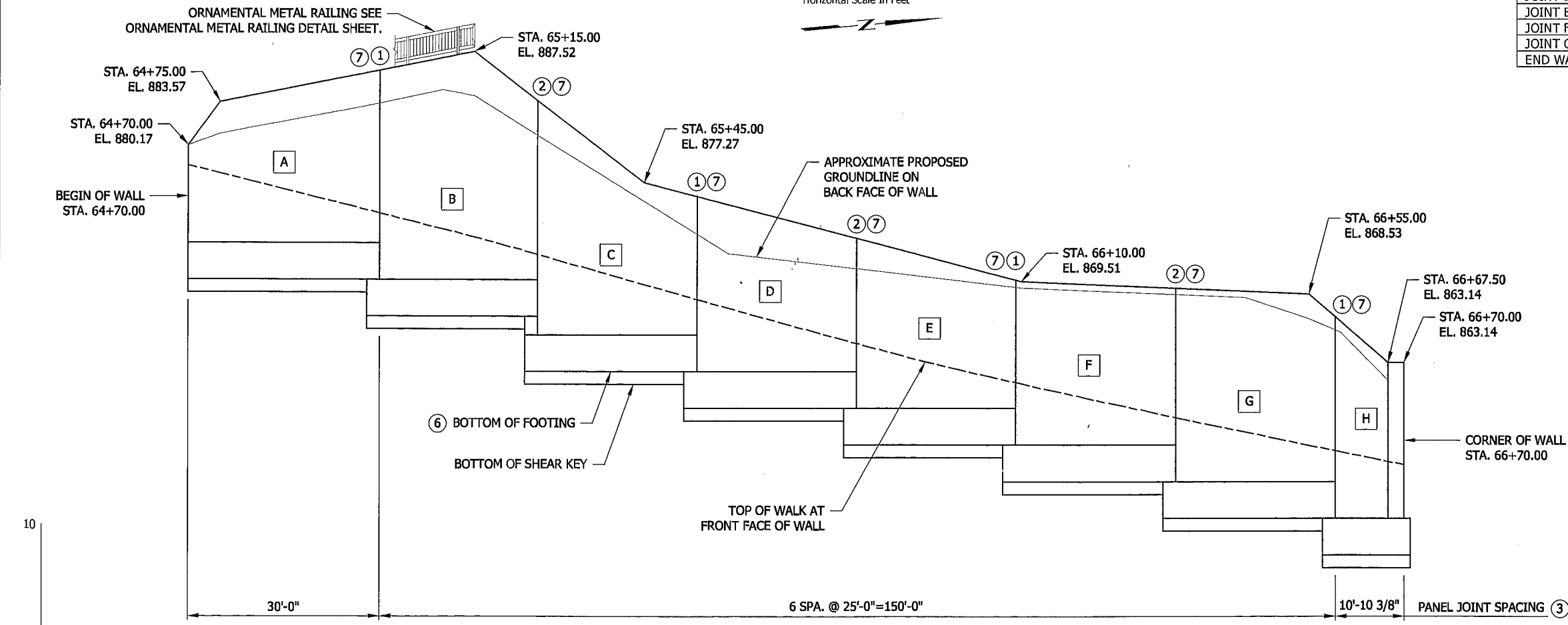
Plot Date: 04/08/2014 - 2:14pm
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 xref: 19802252_BORDER PLAN & ELEVATION

THE CONTRACTOR SHALL VERIFY AND BE RESPONSIBLE FOR ALL DIMENSIONS. DO NOT SCALE. THE CONTRACTOR SHALL VERIFY AND BE RESPONSIBLE FOR ALL DIMENSIONS. DO NOT SCALE. THE CONTRACTOR SHALL VERIFY AND BE RESPONSIBLE FOR ALL DIMENSIONS. DO NOT SCALE.



WALL JOINT STATIONS & ELEVATIONS				
LOCATION	WEST AVE. STA.	TOP OF WALL ELEVATION	DOWNSTATION BOTTOM OF FOOTING ELEVATION	UPSTATION BOTTOM OF FOOTING ELEVATION
BEGIN WALL	64+70.00	880.17	-	869.66
JOINT AB	65+00.00	886.04	869.66	866.78
JOINT BC	65+26.08	883.68	866.78	862.45
JOINT CD	65+54.39	876.18	862.45	859.58
JOINT DE	65+82.71	872.90	859.58	856.70
JOINT EF	66+09.14	869.62	856.70	853.83
JOINT FG	66+34.14	868.98	853.83	850.95
JOINT GH	66+59.14	866.74	850.95	848.08
END WALL	66+70.00	863.14	848.08	-

- NOTES:**
- DENOTES PANEL LABEL
 - ① WALL CONSTRUCTION JOINT. SEE SHEET 44 FOR DETAILS.
 - ② WALL CORK & DOWEL JOINT. SEE SHEET 44 FOR DETAILS.
 - ③ MEASURED ALONG FRONT FACE OF PLAIN WALL CONCRETE. ALL JOINTS ARE RADIAL LINES.
 - ④ STATIONS SHOWN ARE WEST AVENUE CENTERLINE STATIONS
 - ⑤ DIMENSION IS FROM CENTERLINE WEST AVENUE TO FRONT FACE OF PLAIN WALL CONCRETE (SEE NEXT SHEET).
 - ⑥ IF HARD BEDROCK IS ENCOUNTERED DURING EXCAVATION, AN INTERMEDIATE FOOTING STEP MAY BE ADDED IF APPROVED BY THE ENGINEER IN THE FIELD. SEE SHEET 45 FOR INTERMEDIATE STEP FOOTING DETAIL. THE CONTRACTOR SHALL RECEIVE NO ADDITIONAL COMPENSATION IF THE INTERMEDIATE FOOTING STEP IS USED.
 - ⑦ FINAL JOINT TYPE AT EACH LOCATION SHALL BE APPROVED BY THE ENGINEER IN THE FIELD AFTER EXCAVATION FOR FOOTING CONSTRUCTION IS COMPLETE. CHANGES IN FOOTING BEARING CONDITIONS FROM THE ONE PANEL TO THE NEXT MAY NECESSITATE ADJUSTING JOINT TYPE LOCATIONS.



PROFILE LOOKING WEST ④



CERTIFIED BY: *Ronald Benson* 3/14/2014
 LICENSED PROFESSIONAL ENGINEER DATE
 NAME: RONALD BENSON LIC. NO.: 22737

TITLE: GENERAL PLAN & PROFILE

DES: BLF DR: AMH APPROVED:
 CHK: AMH CHK: BLF
 SHEET NO. 34 OF 51 SHEETS

S.P. 156-127-003

Plot Date: 04/07/2014 8:45:15am
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