

Item 6A
BCWMC 3-20-14

BASSETT CREEK RESTORATION PROJECT SPECIAL PROVISIONS
PARK & RECREATION BOARD GENERAL CONDITIONS
SPECIFICATIONS

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

ALL TRAFFIC CONTROL DEVICES AND SIGNING SHALL COMFORM TO THE MN MUTCD
INCLUDING THE FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS,
DATED JANUARY, 2004. ALL TRAFFIC CONTROL DEVICES SHALL HAVE RETROREFLECTIVE
SHEETING.

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	SITE PLAN
3	GENERAL NOTES
4-5	STREAMBANK STABILIZATION DETAILS
6	VEGETATED REINFORCED SOIL SLOPE DETAIL
7-9	SITE RENDERINGS
10-12	CONSTRUCTION NOTES
13-21	CONSTRUCTION PLANS
22-25	STORMWATER POLLUTION PREVENTION PLAN
26-31	EROSION & SEDIMENT CONTROL SITE PLAN
32	EROSION & SEDIMENT CONTROL DETAILS

ALL APPLICABLE FEDERAL, STATE, AND LOCAL LAWS AND ORDINANCES WILL BE COMPLIED WITH IN THE CONSTRUCTION OF THIS PROJECT.



701 Xenia Avenue South, Suite 300
Minneapolis, MN 55416
www.wsbeng.com

763-541-4800 - Fax 763-541-1700
INFRASTRUCTURE || ENGINEERING || PLANNING || CONSTRUCTION

I HEREBY CERTIFY THAT THIS PLAN 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.

ENGR. _____ PETER R. WILLENBRING
DATE 02/05/2014 LIC. NO. 15998

PLAN REVIEW:
07/16/2013 BCWMC COMMENTS

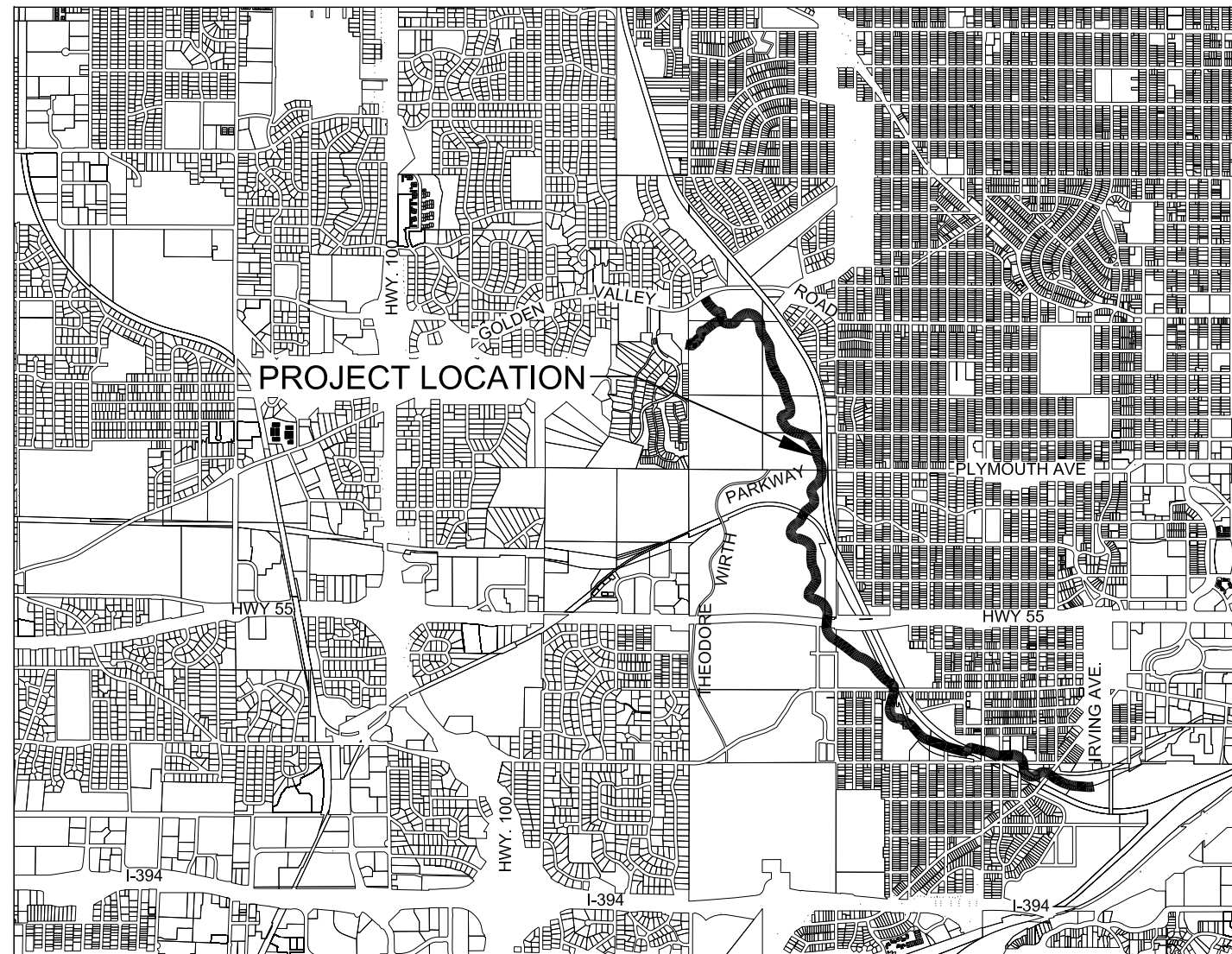
Prepared for:
MINNEAPOLIS PARK AND RECREATION BOARD
2117 WEST RIVER ROAD NORTH
MINNEAPOLIS, Minnesota 55411
(612) 230-6400

MAIN STEM OF BASSETT CREEK RESTORATION PROJECT

MINNEAPOLIS PARK & RECREATION BOARD

CONSTRUCTION PLAN FOR STREAMBANK STABILIZATION AND HABITAT RESTORATION ALONG BASSETT CREEK

GOLDEN VALLEY ROAD EXTENDING SOUTH APPROXIMATELY 15,000 FEET TO IRVING AVENUE



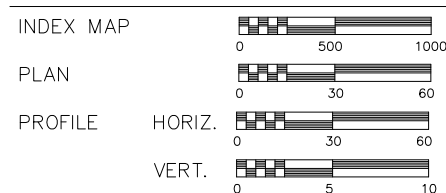
PLAN SYMBOLS

- STATE LINE
- COUNTY LINE
- TOWNSHIP OR RANGE LINE
- SECTION LINE
- QUARTER LINE
- SIXTEENTH LINE
- RIGHT-OF-WAY LINE
- SLOPE EASEMENT
- PRESENT RIGHT-OF-WAY
- CONTROL OF ACCESS LINE
- PROPERTY LINES (EXCEPT LAND LINES)
- VACATED PLATTED PROPERTY
- CORPORATE OR CITY LIMITS
- TRUNK HIGHWAY CENTER LINE
- RETAINING WALL
- RAILROAD
- RAILROAD RIGHT-OF-WAY
- RIVER OR CREEK
- DRY RUN
- DRAINAGE DITCH
- DRAIN TILE
- CULVERT
- DROP INLET
- GUARD RAIL
- BARBED WIRE FENCE
- WOVEN WIRE FENCE
- CHAIN LINK FENCE
- RAILROAD SNOW FENCE
- STONE WALL OR FENCE
- HEDGE
- RAILROAD CROSSING SIGN
- RAILROAD CROSSING BELL
- ELECTRIC WARNING SIGN
- CROSSING GATE
- MEANDER CORNER
- SPRINGS
- MARSH
- TIMBER
- ORCHARD
- BRUSH
- NURSERY
- CATCH BASIN
- FIRE HYDRANT
- CATTLE GUARD
- OVERPASS (HIGHWAY OVER)
- UNDERPASS (HIGHWAY UNDER)
- BRIDGE
- BUILDING (ONE STORY FRAME)
- F - FRAME C - CONCRETE
- S - STONE T - TILE
- B - BRICK ST - STUCCO
- IRON ROD OR PIPE
- MONUMENT (STONE, CONCRETE, OR METAL)
- WOODEN HUB
- GRAVEL PIT
- SAND PIT
- BORROW PIT
- ROCK QUARRY

UTILITY SYMBOLS

- POWER POLE LINE
- TELEPHONE OR TELEGRAPH POLE LINE
- JOINT TELEPHONE AND POWER ON POWER POLE
- ON TELEPHONE POLES
- ANCHOR
- STREET LIGHT
- PEDESTAL (TELEPHONE CABLE TERMINAL)
- GAS MAIN
- WATER MAIN
- CONDUIT
- TELEPHONE CABLE IN CONDUIT
- ELECTRIC CABLE IN CONDUIT
- TELEPHONE MANHOLE
- ELECTRIC MANHOLE
- BURIED TELEPHONE CABLE
- BURIED ELECTRIC CABLE
- AERIAL TELEPHONE CABLE
- SEWER (SANITARY OR STORM)
- SEWER MANHOLE

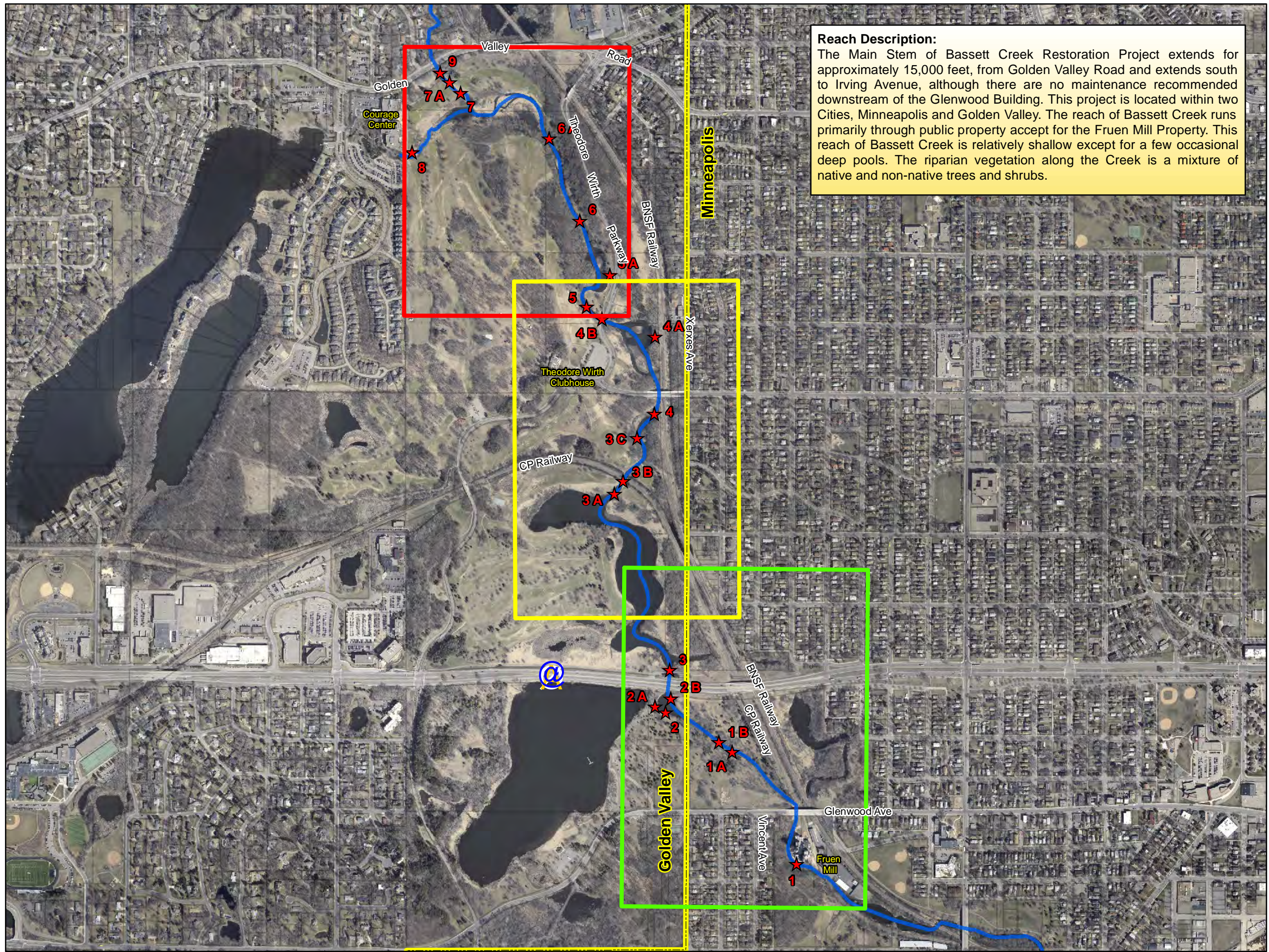
SCALES



THE INFORMATION SHOWN ON THESE DRAWINGS CONCERNING TYPE AND LOCATION OF PRIVATE UTILITIES IS NOT GUARANTEED TO BE ACCURATE OR ALL-INCLUSIVE. THE CONTRACTOR IS TO DETERMINE THE TYPE AND LOCATION OF PRIVATE UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE THERETO. SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-2, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEDICATION OF EXISTING SUBSURFACE UTILITY DATA."

EXCAVATION NOTICE SYSTEM

A CALL TO GOPHER STATE ONE (651-454-0002) IS REQUIRED A MINIMUM OF 48 HOURS PRIOR TO PERFORMING ANY EXCAVATION.



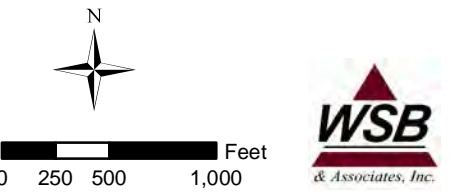
Reach Description:
 The Main Stem of Bassett Creek Restoration Project extends for approximately 15,000 feet, from Golden Valley Road and extends south to Irving Avenue, although there are no maintenance recommended downstream of the Glenwood Building. This project is located within two Cities, Minneapolis and Golden Valley. The reach of Bassett Creek runs primarily through public property except for the Fruen Mill Property. This reach of Bassett Creek is relatively shallow except for a few occasional deep pools. The riparian vegetation along the Creek is a mixture of native and non-native trees and shrubs.



Main Stem of Bassett Creek Restoration Project

Site Plan

- Legend**
- ★ Proposed Maintenance Locations
 - Main Stem of Bassett Creek
 - A
 - B
 - C
 - City Boundary
 - Property Boundaries



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

ENGINEER
 DATE: 02/05/2014 LIC. NO.: 15998

SPECIAL NOTE

THE PLANS OUTLINED HEREIN GENERALLY DESCRIBE THE PROPOSED IMPROVEMENTS FOR THE MAIN STEM OF BASSETT CREEK RESTORATION PROJECT. AS PART OF CONSTRUCTION FOR THESE PROPOSED IMPROVEMENTS, THE CONTRACTOR IS EXPECTED TO WORK CLOSELY, IN THE FIELD, WITH THE OWNERS REPRESENTATIVE REGARDING THE FINAL EXTENT AND LOCATION TO WHICH THE PROPOSED IMPROVEMENTS ARE INSTALLED. THIS COORDINATION SHOULD BE INCLUDED WITH THE UNIT BID PRICES.

SITE ACCESS

SITE ACCESS AND LIMITS OF CONSTRUCTION ARE IDENTIFIED ON THE PLANS. ACTUAL ACCESS ROUTES AND LIMITS OF CONSTRUCTION WILL BE STAKED IN THE FIELD BY THE ENGINEER. CONTRACTOR MAY OBTAIN ADDITIONAL ACCESS AT THEIR OWN EXPENSE.

GENERAL CONSTRUCTION NOTES

- CONTRACTOR IS RESPONSIBLE TO LOCATE AND FIELD VERIFY ALL EXISTING UTILITIES PRIOR TO WORK.
- EXISTING ROADS, PARKING LOTS, TRAILS, FENCES SIGNS, UTILITIES, IRRIGATION SYSTEMS AND ALL OTHER ASSOCIATED AND EXISTING FACILITY SITE FEATURES SHALL BE PROTECTED DURING CONSTRUCTION. CONTRACTOR IS RESPONSIBLE FOR REPAIRING ALL DAMAGE THAT OCCURS TO EXISTING FACILITIES.
- CONTRACTOR SHALL INSTALL ALL EROSION CONTROL BMPS PRIOR TO COMMENCEMENT OF GRADING.
- ALL TREES WITH A DIAMETER OF 4 INCHES OR LARGER SHALL BE MARKED FOR REMOVAL BY OWNER OR OWNER'S REPRESENTATIVE. TREES REMOVED THAT ARE NOT MARKED SHALL BE REPLACED IN KIND AT CONTRACTORS EXPENSE.
- ALL DISTURBED AREAS MUST BE TEMPORARILY STABILIZED WITHIN 48 HOURS OF INACTIVITY.
- ALL GROUND DISTURBANCE GENERATED BY GRADING ACTIVITIES SHALL BE STABILIZED AND RESTORED BY FINISH GRADING WITH TOPSOIL, APPLYING NATIVE SEED W/COVER CROP AND EROSION CONTROL BLANKET INCLUDING ACCESS ROUTES AND STOCKPILE
- SEED BED SHALL BE PREPARED WITH A MINIMUM OF 4 INCHES OF TOPSOIL WITH NO EXTRANEIOUS MATERIAL OVER ¾ INCHES ON THE SURFACE.
- EROSION CONTROL BLANKET SHALL BE MNDOT CATEGORY 4 OR OTHERWISE AS SPECIFIED.
- VEGETATIVE AND BIOENGINEERING SOLUTIONS SHALL BE INCORPORATED WHEREVER APPROPRIATE AND FEASIBLE.

RECOMMENDED CONSTRUCTION SEQUENCE

- PROVIDE TRAFFIC CONTROL SIGNS AS NEEDED
- INSTALL SILT CURTAIN AND OTHER SEDIMENT CONTROLS
- REMOVE SELECTED TREES AND STUMPS AS MARKED AND DIRECTED IN THE FIELD BY THE ENGINEER
- STRIP IN PLACE TOPSOIL IN AREAS TO BE DISTURBED AND STOCKPILE.
- SHAPE AND GRADE CHANNEL BANKS TO PROPOSED TYPICAL SECTION (3:1 SLOPES MAX FROM EXISTING TOE OF BANK)
- INSTALL SELECTED STREAMBANK STABILIZATION METHOD IDENTIFIED WITHIN THE PLANS (SEE DETAILS)
- FINISH GRADE DISTURBED AREAS, SPREAD TOPSOIL, SEED, AND STABILIZE WITH SELECTED METHOD
- INSTALL CATEGORY 4 EROSION CONTROL BLANKET (ON SLOPES STEEPER THAN 4:1) OR STRAW MULCH OVER DISTURBED AREAS
- REMOVE SILT CURTAIN, OTHER SEDIMENT CONTROLS AND ANY MISCELLANEOUS DEBRIS THAT WAS REMOVED FROM THE CHANNEL

TREE AND STUMP REMOVAL NOTE

THE ENGINEER WILL SELECT THE TREES AND STUMPS THAT ARE TO BE REMOVED TO GAIN ACCESS TO AND TO PROVIDE THE REQUIRED MAINTENANCE AREAS. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF THE TREES, BRUSH, STUMPS, AND ROOTS FROM THE AREA DESIGNATED FOR CLEARING AND GRUBBING.

UTILITY COORDINATION AND CONFLICT:

UTILITY LOCATE INFORMATION IS LOCATED IN AN A APPENDIX OF THE SPECIFICATIONS AND NOT SHOWN ON THE PLANS. THE CONTRACTOR SHALL SCHEDULE OR REDIRECT HIS/HER WORK TO ENSURE THAT UTILITY COMPANY RELOCATES, INSTALLATIONS AND/OR REMOVALS DO NOT IMPEDE PROGRESS OF THE PROJECT. THE CONTRACTOR SHALL ALSO COORDINATE ALL UNANTICIPATED UTILITY RELOCATIONS OR ADJUSTMENTS DETERMINED TO BE NECESSARY TO COMPLETE THE WORK. NO CLAIMS FOR EXTRA COMPENSATION TO PERFORM THE WORK IN ACCORDANCE WITH THE PLANS THAT ARE DUE TO CONFLICTS WITH IN-PLACE UTILITIES SHALL BE CONSIDERED.

CONTRACTOR RESPONSIBILITY

CONTRACTOR IS RESPONSIBLE TO PROTECT THE PROJECT AREA, INCLUDING AREAS THAT HAVE BEEN RESTORED AND AREAS THAT HAVE NOT BEEN COMPLETED, CONSTRUCTION EQUIPMENT, AND CONSTRUCTION MATERIALS DURING ADVERSE WEATHER CONDITIONS AND PERIODS OF HIGH FLOWS WITHIN THE CHANNEL AT ALL TIMES. NO COMPENSATION WILL BE MADE TO THE CONTRACTOR FOR ADDITIONAL COSTS INCURRED FOR REPAIR OR REPLACEMENT OF ANY DAMAGE THAT MAY OCCUR DUE TO ADVERSE WEATHER CONDITIONS.

SEEDING SPECIFICATIONS:

SEEDING NATIVE GRASSES

RESHAPED AND DISTURBED AREAS ALONG BASSETT CREEK WILL BE REESTABLISHED WITH THE FOLLOWING:

- SEED MIX(S)** PRAIRIE RESTORATION INC. (PRI) SHORELINE GRASS MIX OR SAVANNA GRASS MIX TO BE APPLIED AT @ 20 LBS/AC.
- THE **PRI SHORELINE SEED** MIX IS A SHADE TOLERANT MIX THAT IS ABLE TO WITHSTAND INUNDATION FOR SEVERAL DAYS. THE **PRI SHORELINE SEED** MIX WILL BE USED ALONG THE DISTURBED SLOPES OF BASSETT CREEK FROM THE TOP OF STONE TO THE APPROXIMATE 10 YEAR STAGE ELEVATION, TO BE STAKED IN THE FIELD.
- THE **PRI SAVANNA SEED** MIX IS A SHADE TOLERANT MIX THAT IS SUITABLE FOR UPLAND AREAS. THE **PRI SAVANNA SEED** MIX WILL BE USED ALONG THE DISTURBED SLOPES OF BASSETT CREEK FROM THE APPROXIMATE 10 YEAR STAGE ELEVATION TO THE TOP OF SLOPE, TO BE STAKED IN THE FIELD.
- THE PLACEMENT OF THESE SEED MIXES WILL BE DIRECTED BY THE ENGINEER IN THE FIELD
- ADDITIONAL TEMPORARY SEED:** ADDITIONAL OATS OR WINTER WHEAT SHALL BE MIXED INTO PRI MIXES @ 50 LBS/AC OR 1.5 TIMES USUAL POUNDS PER ACRE TO PROVIDE A FAST GROWING VEGETATIVE COVER.
- IF TEMPORARY COVER IS TO REMAIN IN PLACE BEYOND THE PRESENT GROWING SEASON ADD 0.66 TIMES THE USUAL POUNDS PER ACRE.

DESCRIPTION OF PROPOSED IMPROVEMENTS

THE TECHNIQUES DISCUSSED BELOW ARE COMMONLY USED IN STREAMBANK RESTORATION . THEY WERE INCLUDED IN THE DESIGN FOR THEIR FUNCTIONALITY WITH THE EXPECTATION THAT MOST CONTRACTORS HAVE HAD EXPERIENCE WITH THESE TECHNIQUES AND UNDERSTAND HOW TO INSTALL THEM. THIS DESIGN INCORPORATES THE MOST APPROPRIATE MEASURES TO USE AT EACH INDIVIDUAL SITE IN ORDER TO MEET THE STABILIZATION OBJECTIVES . THE FINAL SIZE, DEPTH, AND LOCATION OF THESE BMPs SHALL BE FINALIZED IN THE FIELD, BY THE PROJECT AND FIELD ENGINEER, DURING CONSTRUCTION.

SLOPE SHAPING

THIS WORK CONSISTS OF SHAPING THE CONTOURS OF THE MAINTENANCE AREAS TO ACHIEVE SLOPES AS SHOWN ON THE PLANS. SLOPE PREPARATION WILL AID IN THE PLACEMENT OF THE SELECTED SLOPE STABILIZATION METHOD. IT IS ANTICIPATED THAT EARTHWORK ON THIS PROJECT WILL BALANCE ON SITE (SEE DETAIL).

FIELDSTONE BOULDER

FIELDSTONE BOULDER WILL BE USED TO PROTECT THE TOE OF THE STREAM BANK. IN STREAM TYPICALLY CONSISTS OF BOULDER-SIZED ROCK (30 INCHES TO 34 INCHES IN DIAMETER) PLACED OVER A HALF FOOT THICK LAYER OF CLASS I FIELDSTONE RIP RAP AND A HALF FOOT LAYER OF COARSE FILTER AGGREGATE. THE BOULDER WILL EXTEND UP THE RESHAPED SLOPE AND CANNOT EXTEND PAST THE TOP OF BANK. THE EXACT LOCATION AND ELEVATION OF THE BOULDER TOE WILL BE STAKED IN THE FIELD BY THE ENGINEER(SEE DETAIL). **PLACEMENT OF FIELDSTONE BOULDERS MUST NOT RESULT IN A DECREASE OF CHANNEL CROSS SECTION.**

FIELDSTONE RIP RAP

FIELDSTONE RIP RAP WILL BE USED TO PROTECT THE TOE OF THE STREAM BANK. IN STREAM SYSTEMS, RIP RAP CONSISTS OF COBBLE-SIZED ROCK (12 INCHES TO 18 INCHES IN DIAMETER). THE RIPRAP IS KEYED IN TO THE STREAMBED AND EXTENDS UP THE RESHAPED SLOPE AND CANNOT EXTEND PAST THE TOP OF BANK. THE EXACT LOCATION AND ELEVATION OF THE STONE TOE WILL BE STAKED IN THE FIELD BY THE ENGINEER. HAND PLACEMENT OF FIELDSTONE RIP RAP WILL BE REQUIRED AND WILL BE DIRECTED BY THE ENGINEER (SEE DETAIL). **PLACEMENT OF FIELDSTONE RIP RAP MUST NOT RESULT IN A DECREASE OF CHANNEL CROSS SECTION.**

VEGETATED REINFORCED SLOPE STABILIZATION (VRSS)

VRSS IS A BIOENGINEERING METHOD THAT COMBINES ROCK, GEOSYNTHETICS, SOIL, AND PLANTS TO STABILIZE STEEP, ERODING BANKS. VRSS TYPICALLY INVOLVES PROTECTING LAYERS OF SOIL WITH A BLANKET OR GEOTEXTILE MATERIAL CREATING “SOIL LIFTS” (ALSO CALLED “SOIL PILLOWS”) AND VEGETATING THE SLOPE. THE VEGETATION ROOT SYSTEM PROVIDES THE LONG-TERM SLOPE STABILIZATION.

BIO-LOGS BANK PROTECTION

BIO-LOGS ARE NATURAL FIBER ROLLS MADE FROM COIR FIBER THAT ARE LAID ALONG THE TOE OF THE STREAM BANK SLOPE TO STABILIZE THE TOE OF THE STREAM BANK. THE BIO-LOGS ARE TYPICALLY 12 INCHES IN DIAMETER. BECAUSE THEY ARE MADE OF NATURAL FIBER, VEGETATION CAN GROW ON THE BIO-LOGS. WHEN NEEDED, GRADING OF THE STREAM BANK SLOPE ABOVE THE BIO-LOG WILL ACHIEVE A MORE STABLE SLOPE (2:1 TO 3:1). CORD GRASS PLUGS WILL BE PLACED WITHIN THE BIO-LOG THREE FEET ON CENTER.

LIVE FASCINES

LIVE FASCINES ALSO USE DORMANT WILLOW AND DOGWOOD CUTTINGS INSTALLED DURING THE DORMANT SEASON. IN THIS CASE, THE CUTTINGS ARE BUNDLED TOGETHER AND PLANTED IN A ROW PARALLEL TO THE STREAM FLOW. THEY CAN BE EFFECTIVE IN REDUCING SHEET EROSION ALONG A SLOPE BECAUSE A PORTION OF THE FASCINE EXTENDS ABOVE THE GROUND SURFACE.

ROCK VANES

ROCK VANES, OR J-VANES, ARE CONSTRUCTED OF BOULDERS EMBEDDED INTO THE CREEK BOTTOM. THE VANES ARE EMBEDDED (FIVE FEET) IN THE STREAM BANK AND ARE ORIENTED UPSTREAM (20 TO 30 DEGREES) TO DIRECT THE FLOW AWAY FROM THAT BANK. J-VANES WILL NOT OCCUPY NO MORE THAN ONE-THIRD OF THE CHANNEL WIDTH (SEE DETAIL).

ROOT WADS

ROOT WADS ARE CONSTRUCTED FROM ROOT BALLS OF TREES REMOVED AS PART OF THIS PROJECT. THE TRUNKS ARE BURIED INTO THE BOTTOM OF THE STREAM BANK, WITH THE ROOT WAD END STICKING OUT INTO THE STREAM. SUPPORTING “FOOTER LOGS” AND BOULDERS ARE USED TO STABILIZE THE ROOT WADS.

LIVE STAKES

LIVE STAKES ARE DORMANT STEM CUTTINGS, TYPICALLY WILLOW AND DOGWOOD SPECIES. THEY ARE COLLECTED AND INSTALLED DURING THE DORMANT SEASON AND GROW NEW ROOTS AND LEAVES REVEGETATING A STREAM BANK. MATERIALS WILL BE CUT AND PLACED IN A CONTAINER OF WATER TO BE TRANSPORTED TO THE SITE AND KEPT IN WATER UNTIL INSTALLED. TAPER THE CUTTING WITH THE END GOING INTO THE GROUND AT RIGHT ANGLES TO THE SLOPE FACE, 2/3 - 3/4 OF THEIR LENGTH. CARE SHALL BE TAKEN NOT TO SPLIT THE ENDS OR DAMAGE THE BARK OF THE CUTTINGS. THE ENGINEER SHALL STAKE THE LOCATION OF LIVE STAKES IN THE FIELD (SEE DETAIL).

SOIL STABILIZATION REQUIREMENTS FOR SEEDING NATIVE GRASSES:

- STRAW MULCH** DISC ANCHORED @ 2 TON/AC (SLOPES LESS THAN 4:1)
- BLANKET** MNDOT TYPE IV FOR (SLOPES GREATER THAN 4:1)
- THE PLACEMENT OF SOIL STABILIZATION MEASURES WILL BE DIRECTED BY THE ENGINEER IN THE FIELD.

TURF ESTABLISHMENT

AREAS DISTURBED DURING CONSTRUCTION THAT ARE NOT IMMEDIATELY ADJACENT TO BASSETT CREEK OR IN NON-MAINTAINED AREAS SHALL BE REESTABLISHED WITH THE FOLLOWING:

- SEED MIX** MNDOT 260 @ 100 LBS/AC
- FERTILIZER** MNDOT TYPE 2 @ 200 LBS/AC
- STRAW MULCH** @ 2 TON/AC AND DISC ANCHORED MULCHED (SLOPES LESS THAN 4:1)
- EROSION BLANKET** MNDOT TYPE 4 FOR (SLOPES GREATER THAN 4:1)
- AREAS REQUIRING TURF ESTABLISHMENT WILL BE DIRECTED BY THE ENGINEER IN THE FIELD AND INCLUDE EITHER TYPE I MULCH MATERIAL OR CATEGORY 4 EROSION CONTROL BLANKET.

CONSTRUCTION NOTES

PROJECT NUMBER 01165–82

MAIN STEM OF BASSETT CREEK RESTORATION PROJECT
MINNEAPOLIS PARK AND RECREATION BOARD, MINNESOTA

701 Xenia Avenue South, Suite 300
Minneapolis, MN 55416
www.wsbeng.com



763-541-4800 • Fax: 763-541-1700
INFRASTRUCTURE | ENGINEERING | PLANNING | CONSTRUCTION

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

ENGINEER

DATE: 02/05/2014 LIC. NO.: 15998

RECORD COPY BY:

CHECKED BY: PH

DESIGN BY: CSF

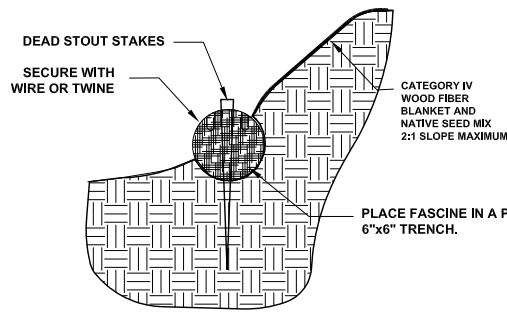
PROJECT NO: 1105-82

AS NOTED

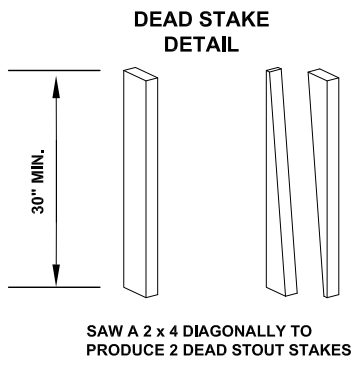
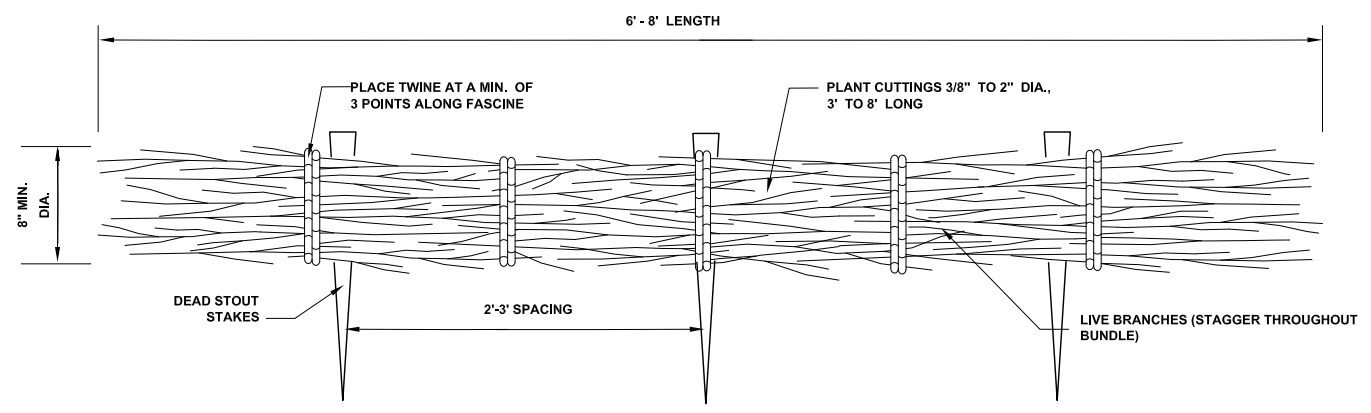
SCALE: PLAN BY: CSF

PERSON NO. DATE

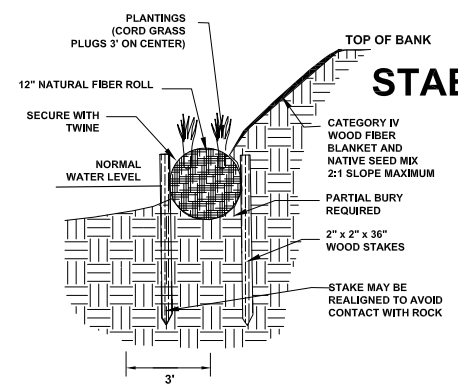
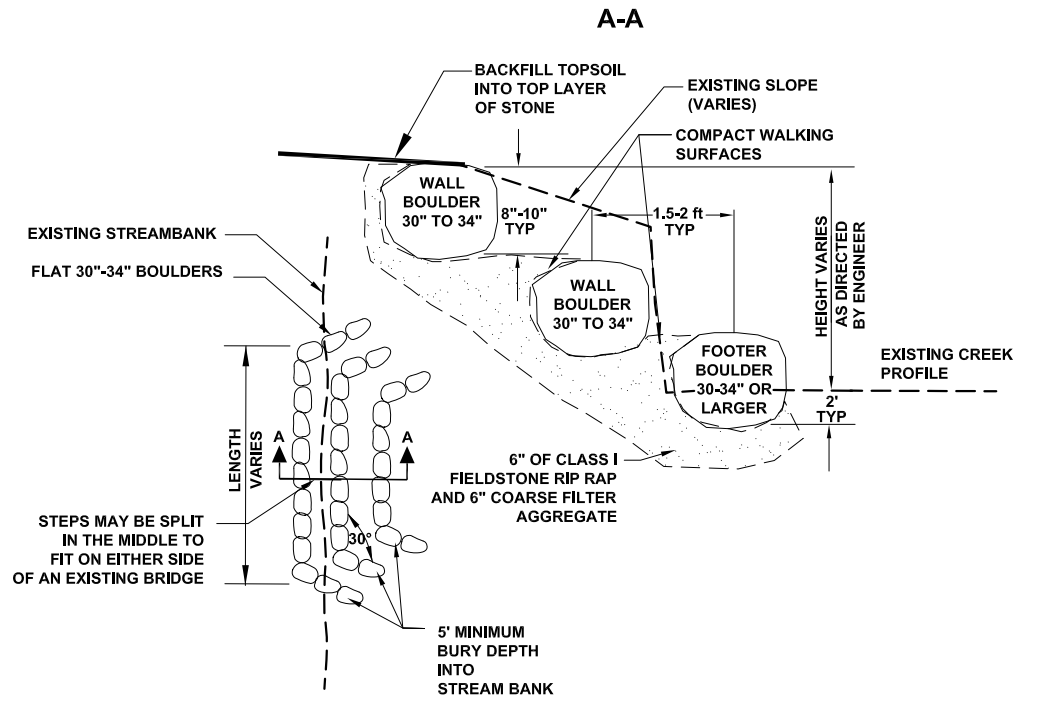
EXPLANATION



FASCINE INSTALLATION DETAIL

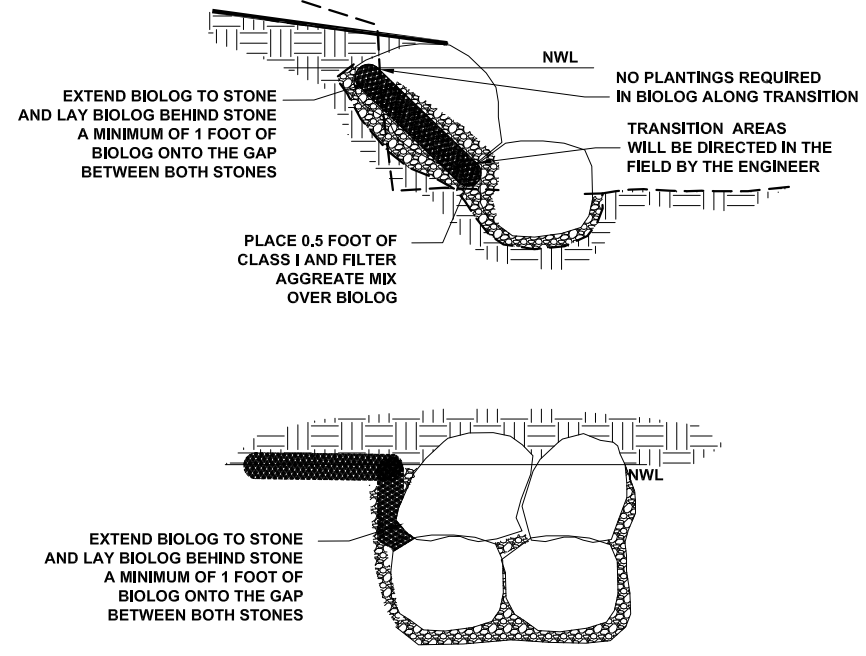


BOULDER STEPS

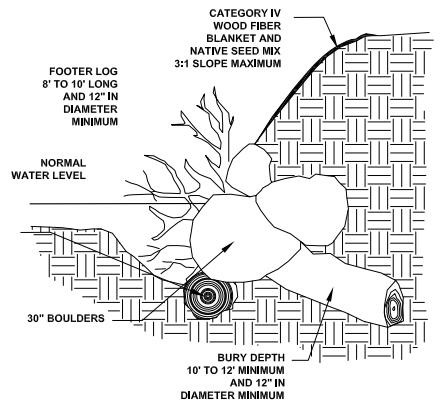


BIO-LOG STABILIZATION DETAIL

FIELDSTONE BIOLOG TRANSITION DETAIL



ROOT WAD DETAIL



PERSON NO.	AS NOTED	EXPLANATION
DATE		
SCALE:	DESIGN BY:	
TEAM BY:	ESF	
CHECKED BY:	PH	
PROJECT NO.:	1165-02	
RECORD COPY BY:		
	ENGINEER	
DATE:	02/05/2014	LIC. NO. 15598

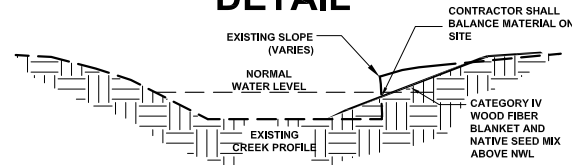
MAIN STEM OF BASSETT CREEK RESTORATION PROJECT
MINNEAPOLIS PARK AND RECREATION BOARD, MINNESOTA

701 Xenia Avenue South, Suite 300
 Minneapolis, MN 55416
 www.wsb.org
WSB & Associates, Inc.
 INFRASTRUCTURE | ENGINEERING | PLANNING | CONSTRUCTION

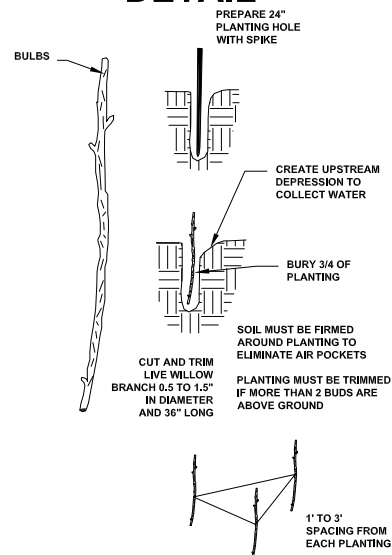
PROJECT SIGNAGE



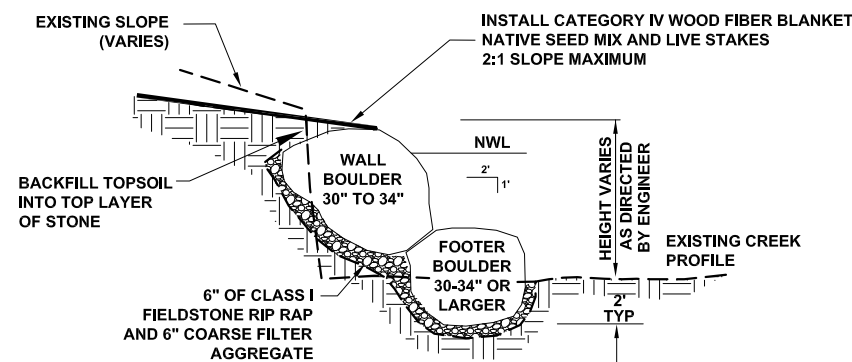
SLOPE PREPARATION DETAIL



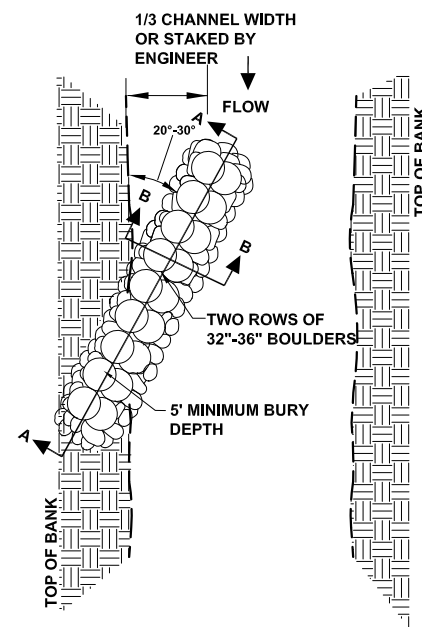
LIVE STAKE DETAIL



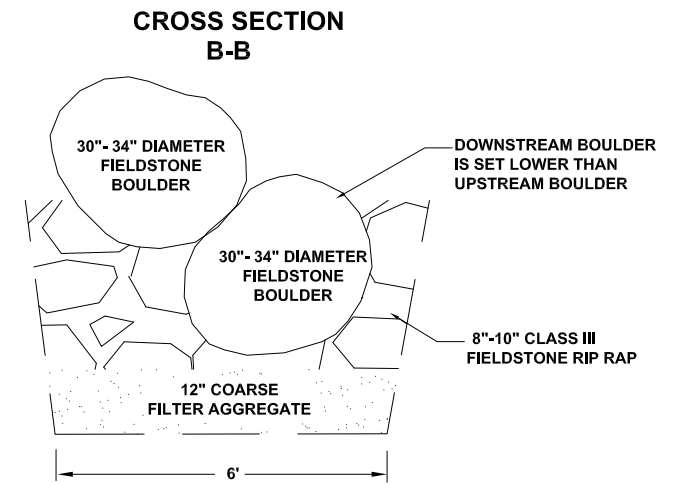
FIELDSTONE STABILIZATION DETAIL



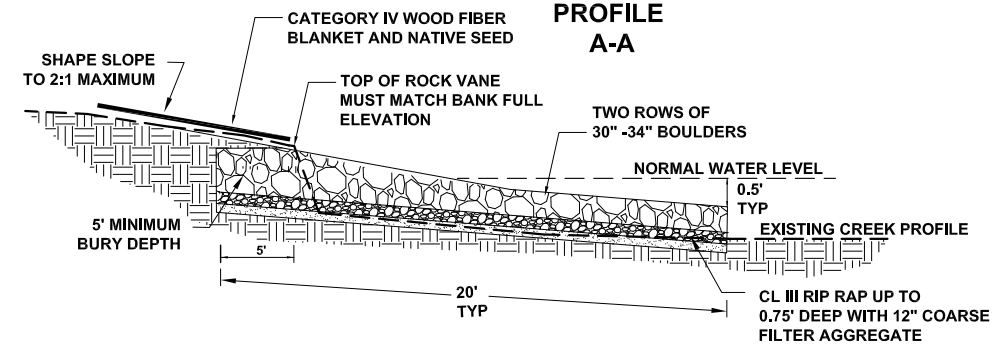
PLAN VIEW



ROCK VANE



PROFILE A-A








PERSON NO.	EXPLANATION
DATE	
AS NOTED	
DESIGN BY: ECF	
PROJECT NO: 1105-82	
CHECKED BY: FHI	
DATE	
RECORD COPY BY:	
DATE: 02/05/2014	
ENGINEER	
LIC. NO: 15998	

MAIN STEM OF BASSETT CREEK RESTORATION PROJECT
MINNEAPOLIS PARK AND RECREATION BOARD, MINNESOTA

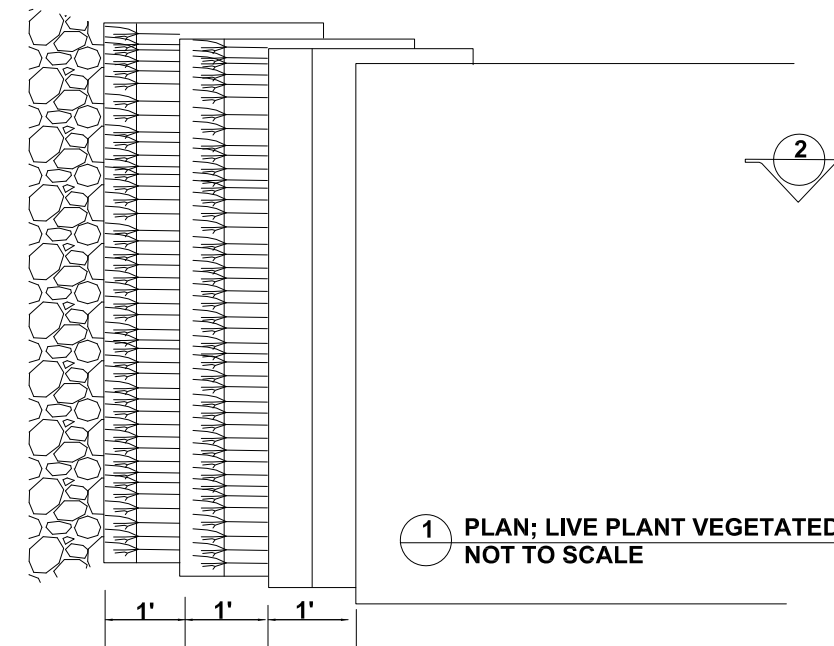
701 Xenia Avenue South, Suite 300
 Minneapolis, MN 55416
 www.wsbeng.com
WSB & Associates, Inc.
 INFRASTRUCTURE ENGINEERING PLANNING CONSTRUCTION

GENERAL NOTES

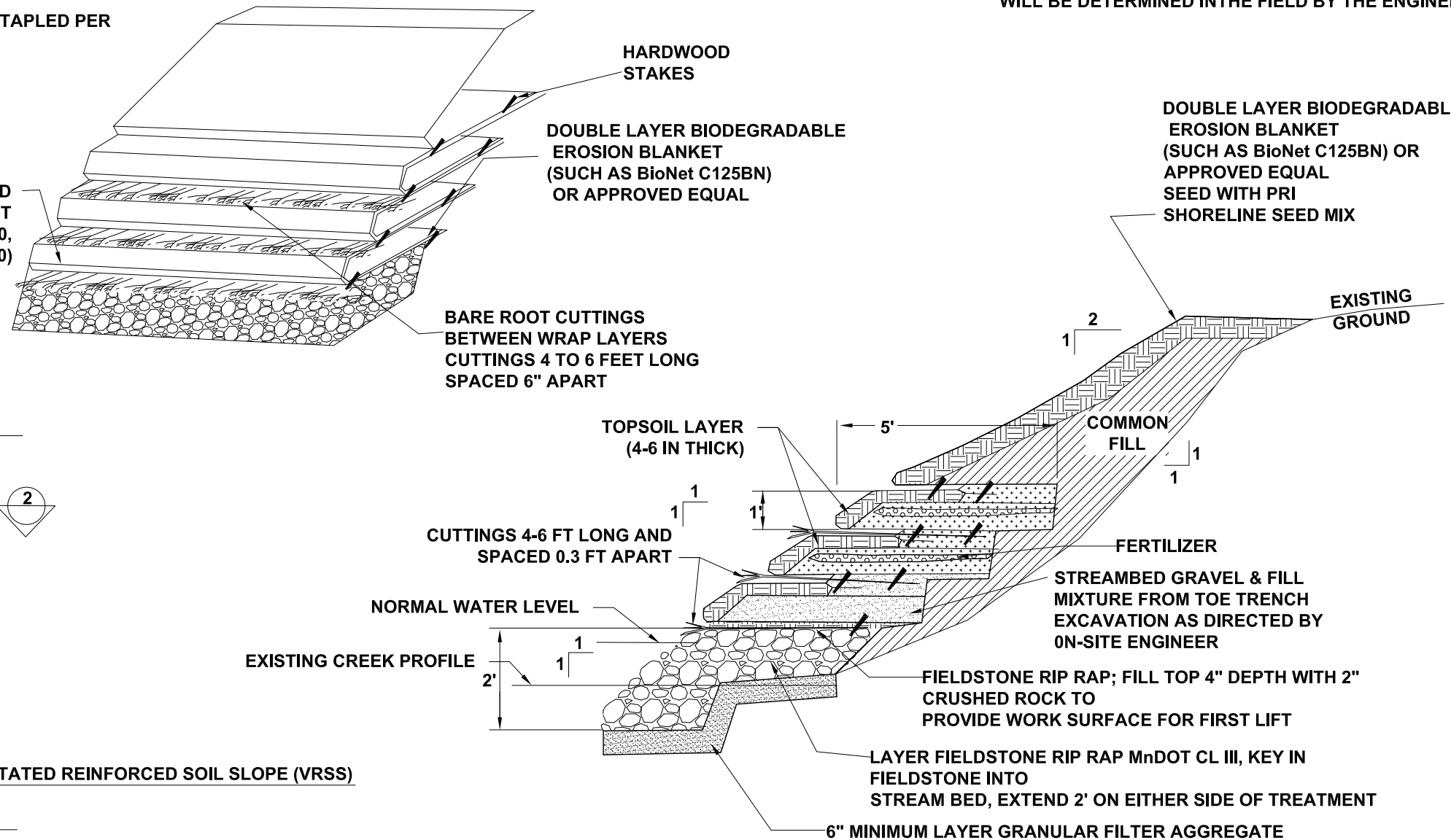
1. SEE SITE PLAN FOR INDIVIDUAL PLANTING
2. SCRAPE AND STOCKPILE TOPSOIL IN IMMEDIATE WORK AREA
3. STOCKPILE NEEDS ADEQUATE EROSION AND SEDIMENT CONTROL BMPs
4. ALL FABRIC AND EROSION CONTROL BLANKET SHALL BE STAPLED PER MANUFACTURERS RECOMMENDATIONS

-  FERTILIZER
-  TOPSOIL
-  BACKFILL
-  GRAVEL
-  RIP RAP

OUTER LAYER; ENGINEER APPROVED HEAVY DUTY COIR BLANKET (SUCH AS GEOCOIR/Dekowe 900, Bio-Matt 90)



2 SECTION: LIVE PLANT VEGETATED REINFORCED SOIL SLOPE (VRSS) NOT TO SCALE



SPECIAL NOTE:
THE EXACT LOCATION , EXTENT, HEIGHT, AND DEPTH WILL BE DETERMINED IN THE FIELD BY THE ENGINEER

1. The ENGINEER must be notified at least 3 days prior to root wad installation and must be on site during installation.
2. Soak dormant cuttings for a minimum of 24 hours in flowing water before planting. Soaking for 5-7 days is considered ideal. The dormant cuttings should only be installed during the dormant season, after leaf drop in the fall and before bud break in the Spring. Dormant currants stored in cold storage with NO visible sign of bud break may be used into late Spring.
3. Install riprap and granular filter aggregate as specified in Section 02375 and as shown on the Drawings.
4. Excavate the existing Streambank slope shoreward from and level with the top of the riprap to form a stable, undisturbed surface. A flat bench should be created from the toe of the stable cut slope to the toe of the proposed stream bank riprap.
5. Dormant cuttings are to be placed on top of the riprap excavated bench at 3 branches per linear foot; the basal end of the cuttings should extend at least 2 foot past the bank of the riprap. No ore than 6 inches of the budding end of the live branch should extend past the front of the riprap. Cover the dormant cuttings with topsoil to create an even surface for the construction of the first soil lift.
6. Lay natural fiber matting on bottom of the bench, overlapping adjacent matting by 1 foot. The outer exposed fiber matting layer of each soil lift shall be GEOCOIR/DeKowe 900 woven coconut fiber mesh, BioD-MoTM90, or an ENGINEER-approved equivalent.
7. The inner layer of each soil lift shall be BioNet C125BN or an ENGINEER-approved equivalent. Lay the inner layer of BioNet on top of natural fiber matting of each soil lift. Fabric should be installed smooth with no unnecessary folds

- or wrinkles. Stake the shoreward end of the fiber matting in place with wooden stakes spaced every three feet as shown on the Drawings.
8. The first 6 to 8 inches of the bottom soil lift shall be filled with gravel and sand material excavated from the stream bed. The top 6 to 8 inches on the front of surface layer should be comprised of topsoil mix as shown on the Drawings.
9. The topsoil layer shall be seeded with the PRI wetland seed mix at 0.7 pounds per 1,000 square feet of lift surface area as shown on the Drawings.
10. Fold the fiber matting over the fill material and stake in place so the fabric is taut and smooth with no unnecessary folds or wrinkles. Back fill behind the bottom soil lift with granular filter material to meet the existing slope as shown on the Drawings.
11. Dormant willow cuttings are to be placed on top of the soil lift at 3 branches per linear foot; the basal end of the cuttings should extend at least 2 foot past the back of the riprap. No more than 6 inches of the budding end of the live branch should extend past the front of the riprap. Cover the dormant cuttings with 2 to 4 inches of topsoil to create an even surface for the construction of the first soil lift.
12. The face of the second soil lift shall be offset shoreward by one foot from the face of the bottom soil lift. The first 6 inches of the second soil lift shall be filled with common fill and topsoil material as shown on the Drawings. The top 6 to 8 inches on the front and top layer should be comprised of topsoil mix as shown on the Drawings. Common fill and topsoil shall be hand tamped and not mechanically compacted to ensure vegetative success.
13. Fertilizer shall be placed at the middle of wrap layers between the backfill and topsoil during placement of fill

- material. Fertilizer shall be applied along the entire length of each wrap layer at a rate of 2.9 lbs per 50 foot long, 5 foot wide lift wrap.
14. The topsoil layer shall be seeded with the VRSS seed mix at 0.7 pounds per 1,000 square feet of lift surface area as shown on the Drawings.
15. Fold the fiber matting the fill material and stake in place so the fabric is taut and smooth with no unnecessary folds or wrinkles. Backfill behind the soil lift with common fill material to meet the existing slope as shown on the Drawings. Fill place behind the second and third soil lift should be placed in eight inch lifts and properly compacted; hand tamped and not mechanically compacted to ensure vegetative success.
16. On both terminal ends of the soil lifts, excess matting shall be used to fold over the ends of the lift and staked firmly. On the first lift layer backfill with or fill adjacent to the end of the lift and compact to secure it firmly.
17. In locations where a third soil lift is shown in the Drawings, a third soil lift shall be constructed in the same manner as the second lift. The face of the third soil lift shall be offset shoreward by one foot from the face of the second soil lift. Dormant cuttings are not placed on top of the upper soil lift.
18. The final slope shall be shaped above the top soil lift as shown on the Drawings. Common fill with a 4 to 6 inch topsoil layer shall be used to form the final slope. The slope shall be seeded with the backcut slope seed mix and stabilized as specified in Section 02950.

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

PERSON NO.	EXPLANATION
DATE	
SCALE:	AS NOTED
TEAM BY:	DESIGN BY: CSF
CHECKED BY: CSF	PROJECT NO: 11052-02
DATE:	DATE
RECORD COPY BY:	DATE
ENGINEER	LIC. NO. 15998
DATE: 02/05/2014	

MAIN STEM OF BASSETT CREEK RESTORATION PROJECT
MINNEAPOLIS PARK AND RECREATION BOARD, MINNESOTA

701 Xenia Avenue South, Suite 300
Minneapolis, MN 55416
www.wsbeng.com



763-541-0800 • Fax: 763-541-1100
INFRASTRUCTURE • ENGINEERING • PLANNING • CONSTRUCTION

62+50



LOOKING WEST ACROSS BASSETT CREEK

BEFORE

AFTER

62+50



INSTALL BOULDER TOE STABILIZATION REPLACE WODDEN RETAINING WALL AND REESTABLISH TRAIL

SPECIAL NOTE:
THE FINAL LOCATION, EXTENT, AND ELEVATION TO WHICH THE PROPOSED IMPROVEMENTS ARE INSTALLED WILL BE STAKED IN THE FIELD BY THE ENGINEER

82+00



LOOKING SOUTH ACROSS THE LAGOON SOUTH OF HWY 55

82+00



RESHAPE SLOPE AND INSTALL STONE STAIRS

110+50



LOOKING SOUTH DOWNSTREAM

110+50



INSTALL BOULDER TOE UNDER BRIDGES

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

SCALE: AS NOTED
TEAM BY: ESF
DESIGN BY: ESF
CHECKED BY: PH
PROJECT NO: 1165-82
RECORD COPY BY: DATE

PERSON NO. DATE EXPLANATION

ENGINEER
DATE: 02/05/2014 LIC. NO.: 15998

**MAIN STEM OF BASSETT CREEK
RESTORATION PROJECT
MINNEAPOLIS PARK AND
RECREATION BOARD, MINNESOTA**

701 Xenia Avenue South, Suite 300
Minneapolis, MN 55416
www.wsbeng.com
WSB
& Associates, Inc.
INFRASTRUCTURE | ENGINEERING | PLANNING | CONSTRUCTION

127+50



LOOKING SOUTHWEST FLOW IS FROM LEFT TO RIGHT

BEFORE
AFTER

127+50



INSTALL BOULDER STAIRS

139+00



LOOKING EAST FLOW IS FROM LEFT TO RIGHT

139+00



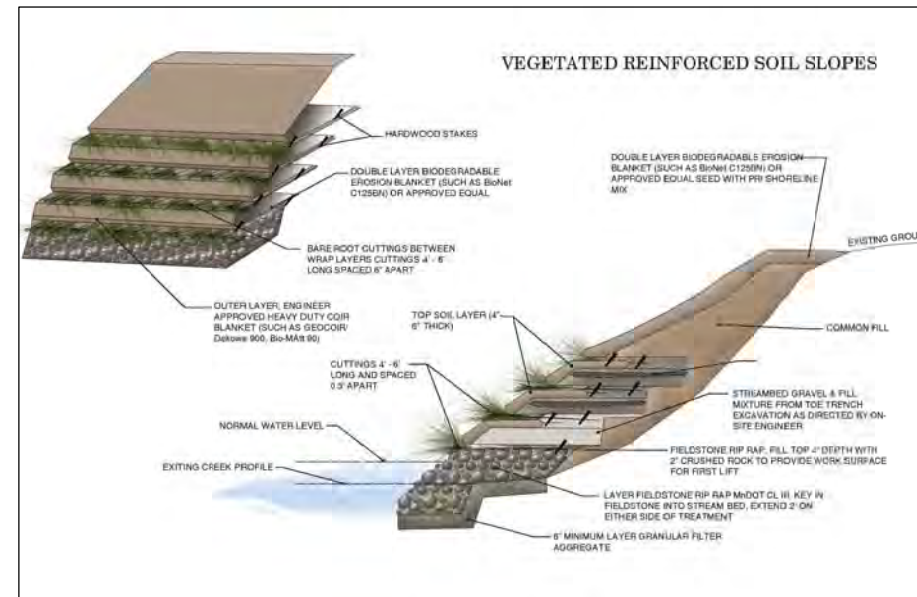
INSTALL VRSS

139+00



LOOKING EAST FLOW IS FROM LEFT TO RIGHT

139+00



VRSS

SPECIAL NOTE:
THE FINAL LOCATION, EXTENT, AND ELEVATION TO WHICH THE PROPOSED IMPROVEMENTS ARE INSTALLED WILL BE STAKED IN THE FIELD BY THE ENGINEER

<p>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</p> <p>ENGINEER DATE: 02/05/2014 LIC. NO.: 15938</p>	<p>SCALE: AS NOTED</p>	<p>PERSON NO. / DATE</p>	<p>EXPLANATION</p>
	<p>TEAM BY: ESF</p>	<p>DESIGN BY: ESF</p>	<p>RECORD COPY BY: DATE</p>
	<p>CHECKED BY: PH</p>	<p>PROJECT NO.: 1165-82</p>	<p>DATE</p>
	<p>DATE: 02/05/2014</p>	<p>LIC. NO.: 15938</p>	<p>DATE</p>

MAIN STEM OF BASSETT CREEK RESTORATION PROJECT
MINNEAPOLIS PARK AND RECREATION BOARD, MINNESOTA

701 Xenia Avenue South, Suite 300
Minneapolis, MN 55416
www.wsbg.com

WSB & Associates, Inc.
INFRASTRUCTURE ENGINEERING PLANNING CONSTRUCTION

763-414-6600 Fax: 763-541-1700

147+50



LOOKING EAST UNDER THE BRIDGE

161+00



LOOKING WEST THE FLOW IS FROM RIGHT TO LEFT

163+00



LOOKING SOUTH DOWNS TREAM

BEFORE AFTER

147+50



INSTALL BOULDER TOE

161+00



RESHAPE SLOPE AND INSTALL TREE REVETMENT

163+00



RESHAPE SLOPE AND INSTALL BIO-LOG

SPECIAL NOTE:
THE FINAL LOCATION, EXTENT, AND ELEVATION TO WHICH THE PROPOSED IMPROVEMENTS ARE INSTALLED WILL BE STAKED IN THE FIELD BY THE ENGINEER

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

ENGINEER
DATE: 02/05/2014 LIC. NO.: 15998

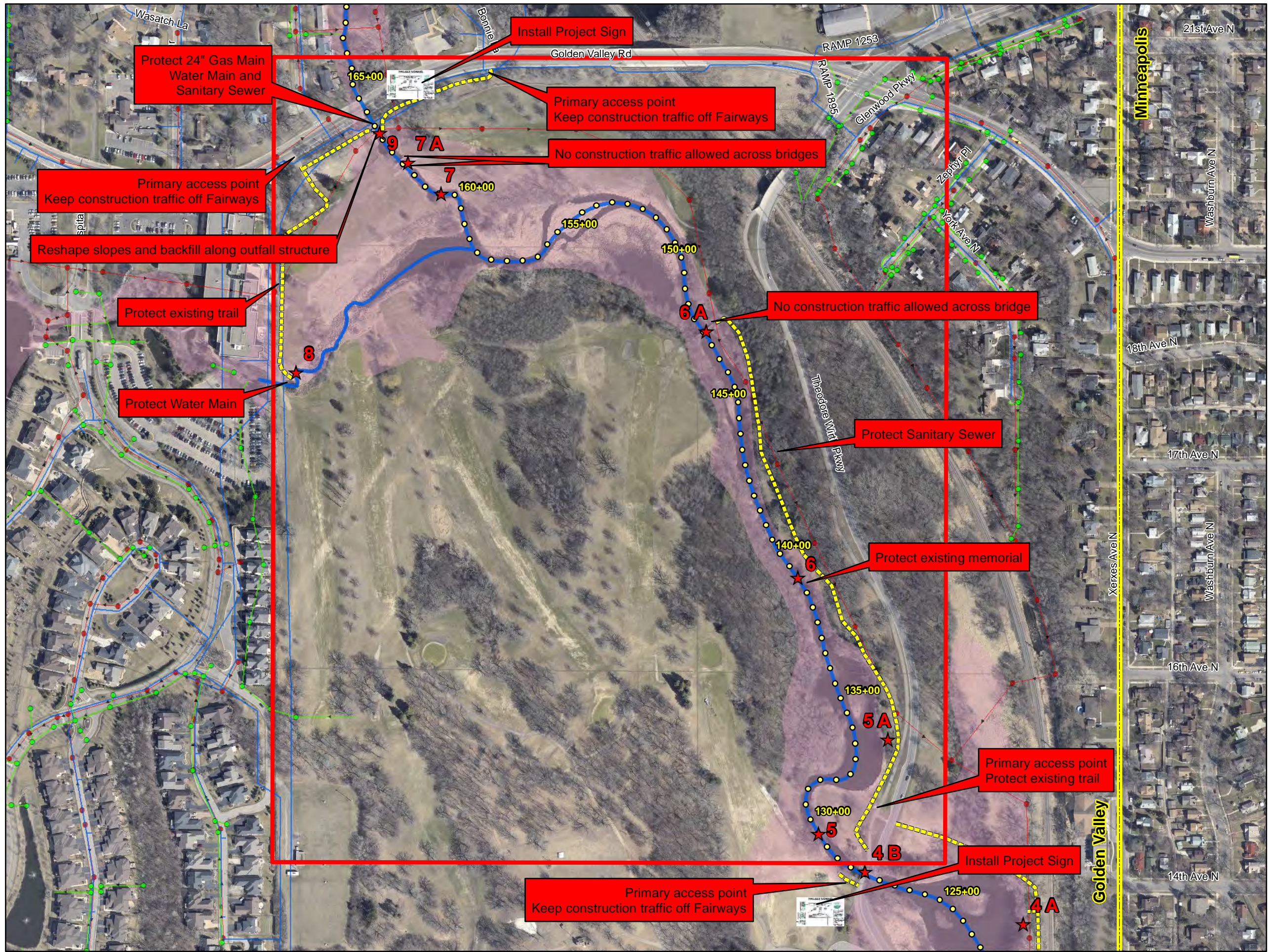
SCALE: AS NOTED
TEAM BY: ESSF
DESIGN BY: ESSF
CHECKED BY: PH
PROJECT NO: 01165-82
RECORD COPY BY: DATE

PERSON NO. DATE EXPLANATION

**MAIN STEM OF BASSETT CREEK
RESTORATION PROJECT
MINNEAPOLIS PARK AND
RECREATION BOARD, MINNESOTA**

701 Xenia Avenue South, Suite 300
Minneapolis, MN 55416
www.wsbeng.com

WSB
& Associates, Inc.
INFRASTRUCTURE | ENGINEERING | PLANNING | CONSTRUCTION



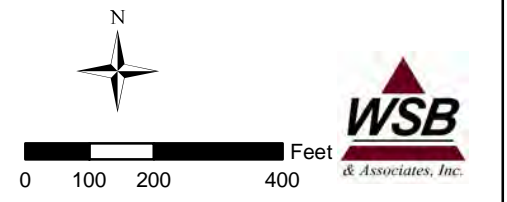
Main Stem of Bassett Creek Restoration Project

Construction Notes

Area A

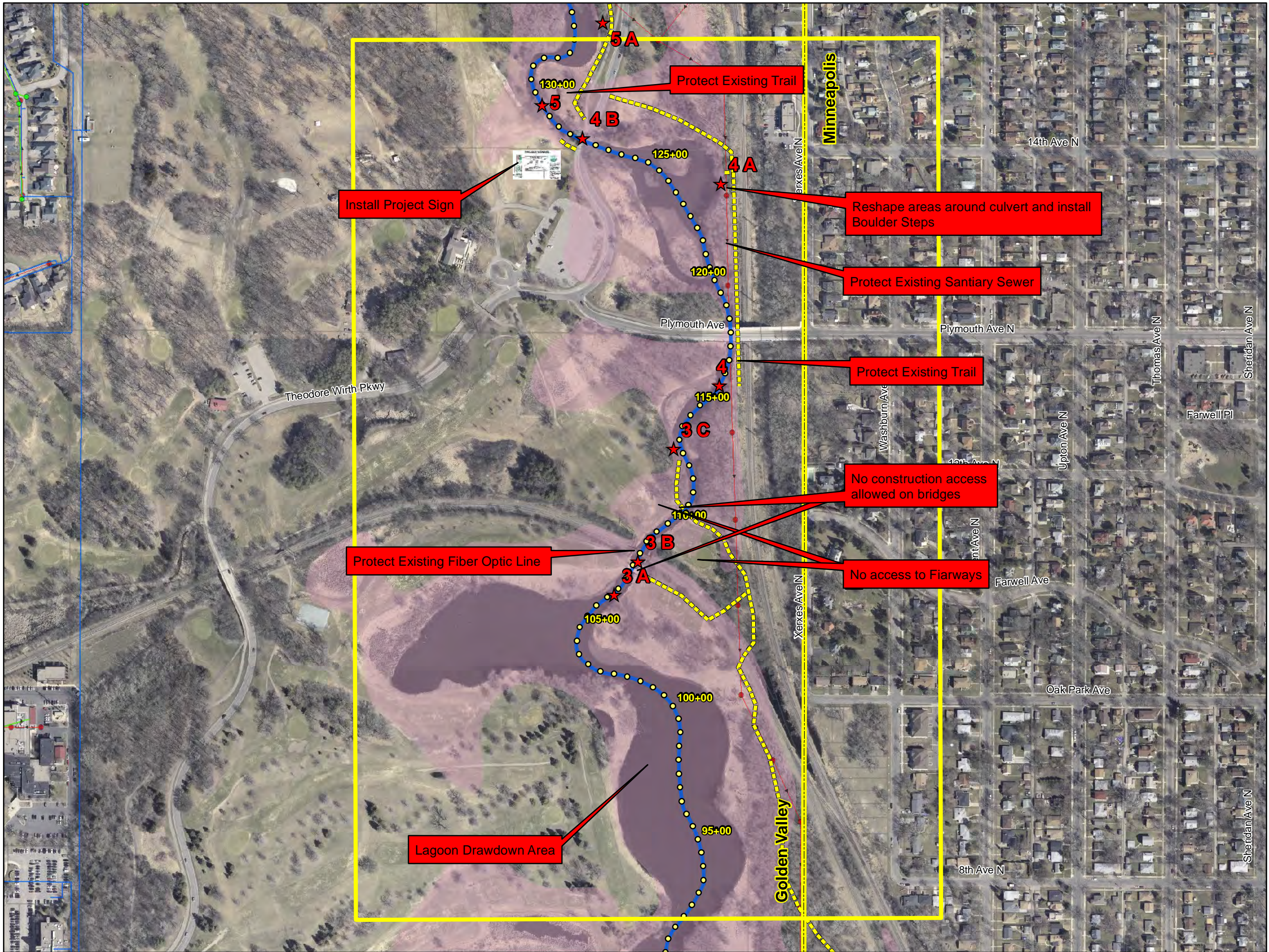
Station 165+00-130+00

- Legend**
- ★ Proposed Maintenance Locations
 - Project Area A
 - City Boundary
 - Access Route
 - Bassett Creek
 - Storm Sewer Manholes
 - Storm Sewer
 - Watermain
 - Sanitary Sewer
 - Sanitary Sewer Manhole
 - 100 Year Flood Plain
 - Property Boundary



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

ENGINEER
 DATE: 02/05/2014 LIC. NO.: 15998



Main Stem of Bassett Creek Restoration Project

Construction Notes Area B Station 130+00-92+00

Legend

- Project Area B
- ★ Proposed Maintenance Locations
- City Boundary
- Access Route
- Bassett Creek
- Storm Sewer Manholes
- Storm Sewer
- Watermain
- Sanitary Sewer
- Sanitary Sewer Manhole
- 100 Year Flood Plain
- Property Boundary



Scale bar: 0 to 100 Feet



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

ENGINEER
DATE: 02/05/2014 LIC. NO.: 15998



Main Stem of Bassett Creek Restoration Project

Project Location Map Area C

Station 92+00-50+00

Legend

- Project Area C
- ★ Proposed Maintenance Locations
- Proposed Maintenance Areas
- City Boundary
- Access Route
- Bassett Creek
- Storm Sewer Manholes
- Storm Sewer
- Watermain
- Sanitary Sewer
- Sanitary Sewer Manhole
- 100 Year Flood Plain
- Property Boundary



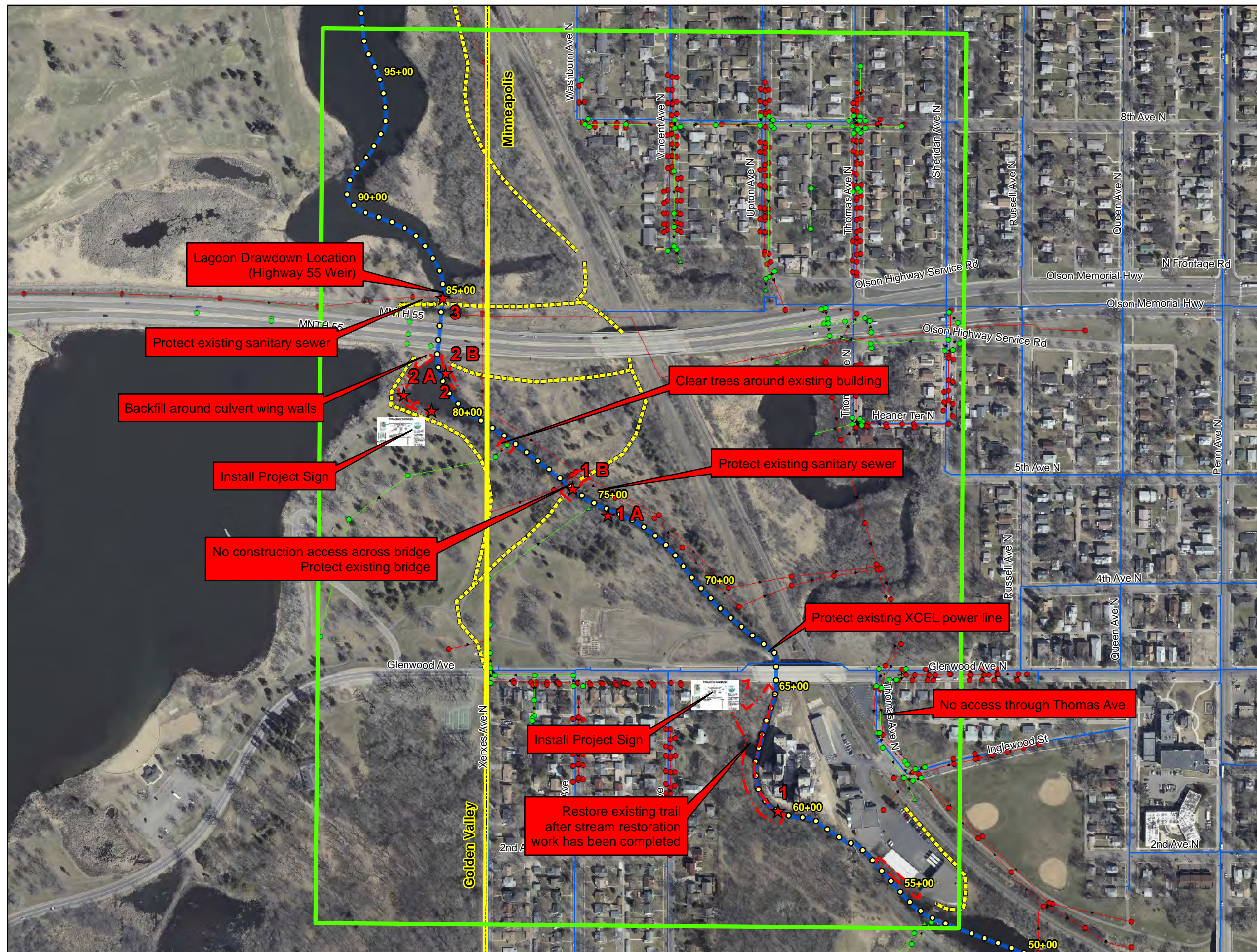
0 100 200 400 Feet



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

ENGINEER
DATE: 02/05/2014 LIC. NO.: 15998

SHEET 12 OF 32 SHEETS



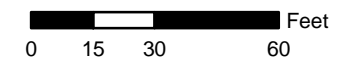


Main Stem of Bassett Creek Restoration Project

Construction Plan Station 164+00-159+00

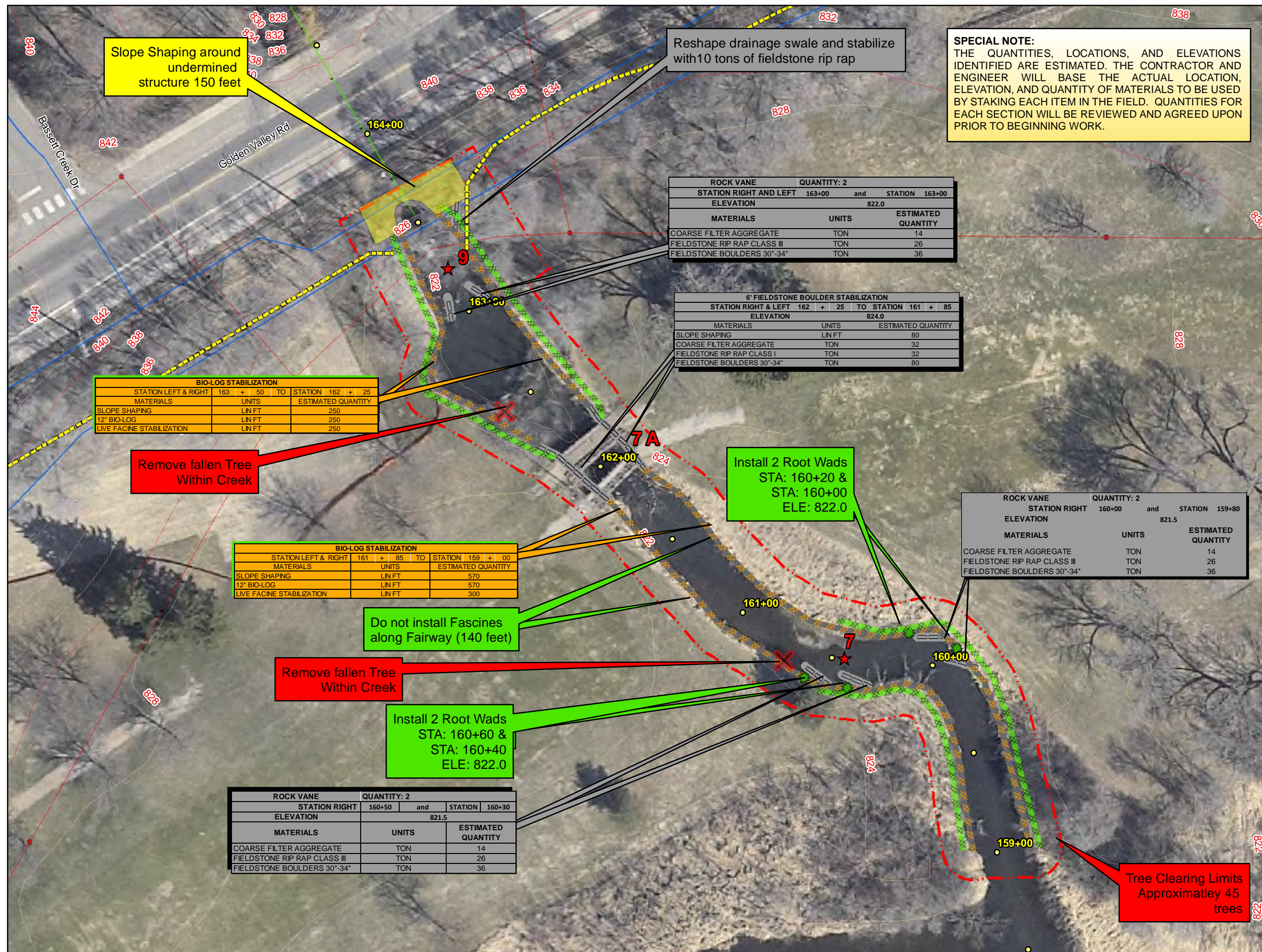
Legend

- ★ Proposed Maintenance Locations
- ✕ Tree Removal
- Access Route
- █ Slope Reshaping & Backfill Area
- █ Fascine
- Root Wads
- █ Bio Log
- ▬ Fieldstone Wall
- ▭ Tree Clearing Limits
- Storm Sewer Manholes
- Storm Sewer
- Watermain
- Sanitary Sewer
- Sanitary Sewer Manhole
- ▭ Property Boundary



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

ENGINEER
DATE: 02/05/2014 LIC. NO.: 15998





Main Stem of Bassett Creek Restoration Project

Construction Plan

Sweeny Branch Station 0+00 - 4+75

Legend

- Proposed Maintenance Locations
- Sweeny Lake Channel
- Access Route
- Fascine
- Root Wads
- Bio Log
- Tree Clearing Limits
- Storm Sewer Manholes
- Storm Sewer
- Watermain
- Sanitary Sewer
- Sanitary Sewer Manhole

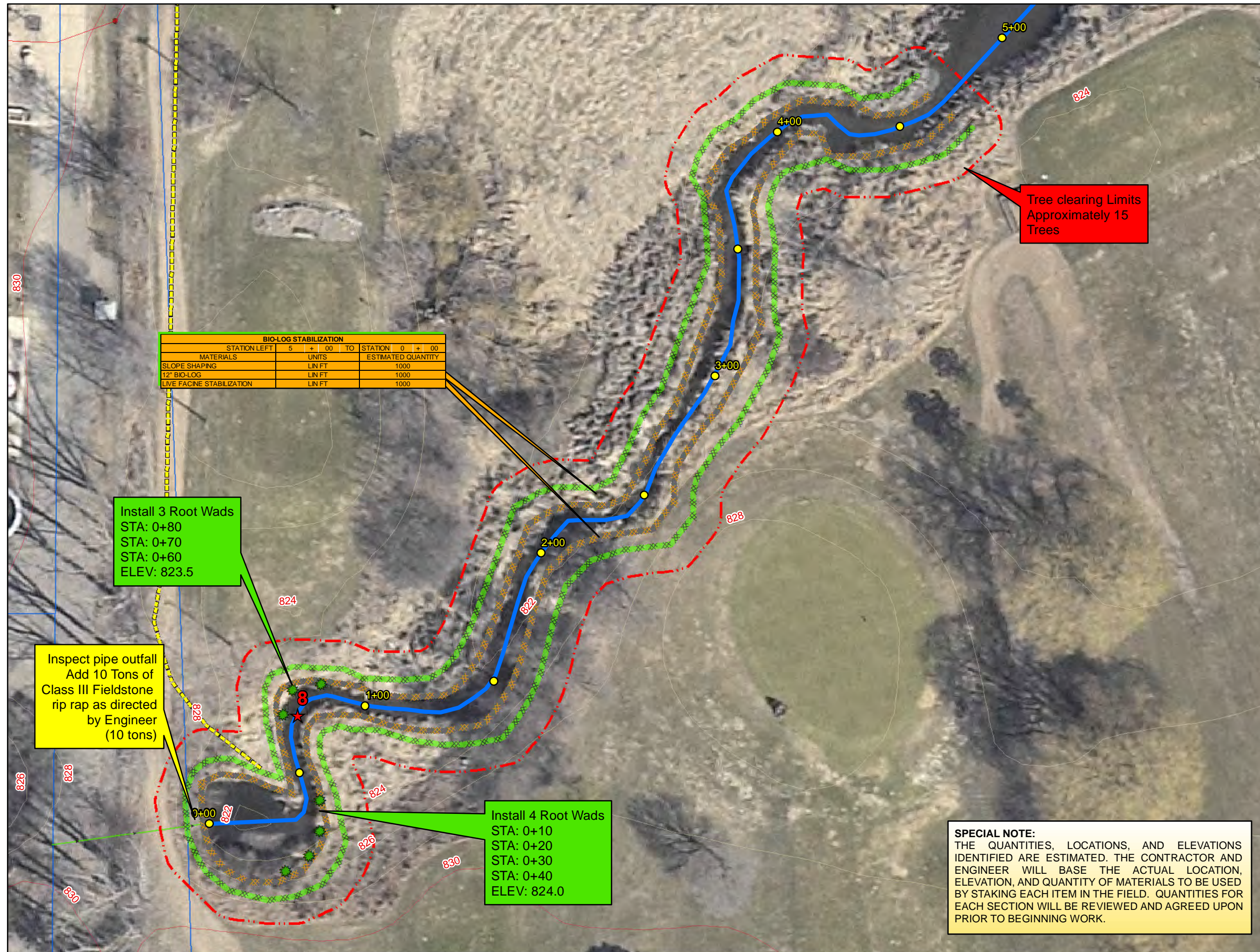


0 10 20 40 Feet



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

ENGINEER
DATE: 02/05/2014 LIC. NO.: 15998



BIO-LOG STABILIZATION		
MATERIALS	UNITS	ESTIMATED QUANTITY
SLOPE SHAPING	LN FT	1000
12" BIO-LOG	LN FT	1000
LIVE FACINE STABILIZATION	LN FT	1000

Install 3 Root Wads
 STA: 0+80
 STA: 0+70
 STA: 0+60
 ELEV: 823.5

Inspect pipe outfall
 Add 10 Tons of
 Class III Fieldstone
 rip rap as directed
 by Engineer
 (10 tons)

Install 4 Root Wads
 STA: 0+10
 STA: 0+20
 STA: 0+30
 STA: 0+40
 ELEV: 824.0

Tree clearing Limits
 Approximately 15
 Trees

SPECIAL NOTE:
 THE QUANTITIES, LOCATIONS, AND ELEVATIONS IDENTIFIED ARE ESTIMATED. THE CONTRACTOR AND ENGINEER WILL BASE THE ACTUAL LOCATION, ELEVATION, AND QUANTITY OF MATERIALS TO BE USED BY STAKING EACH ITEM IN THE FIELD. QUANTITIES FOR EACH SECTION WILL BE REVIEWED AND AGREED UPON PRIOR TO BEGINNING WORK.

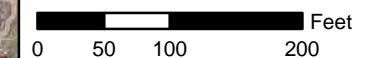


Main Stem of Bassett Creek Restoration Project

Construction Plan Station 150+00-135+00

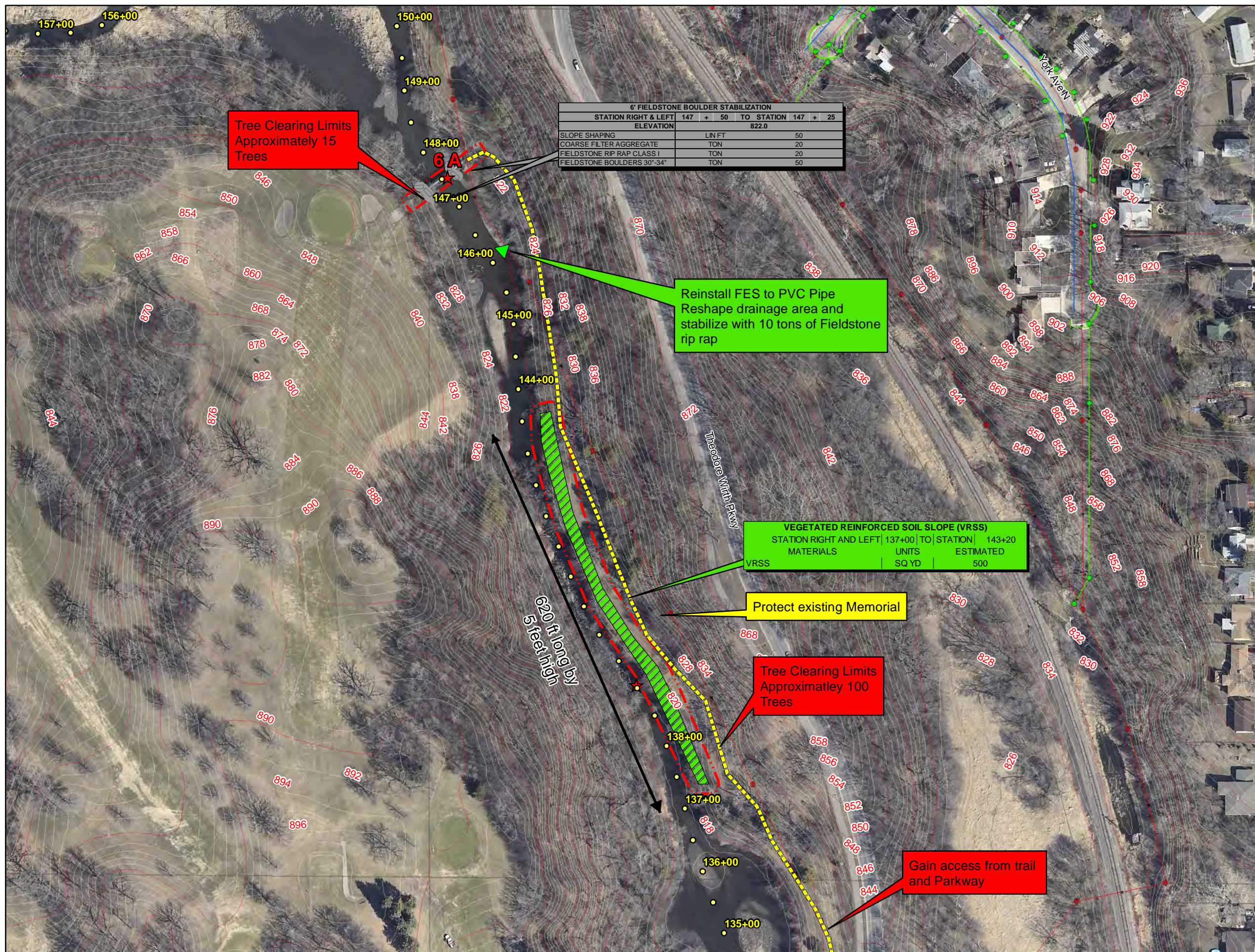
Legend

- Proposed Maintenance Locations
- Access Route
- Fieldstone Wall
- VRSS
- Tree Clearing Limits
- Storm Sewer Manholes
- Storm Sewer
- Watermain
- Sanitary Sewer
- Sanitary Sewer Manhole
- Property Boundary



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

ENGINEER
DATE: 02/05/2014 LIC. NO.: 15998



Tree Clearing Limits
Approximately 15
Trees

Reinstall FES to PVC Pipe
Reshape drainage area and
stabilize with 10 tons of Fieldstone
rip rap

VEGETATED REINFORCED SOIL SLOPE (VRSS)
STATION RIGHT AND LEFT | 137+00 | TO | STATION | 143+20
MATERIALS | UNITS | ESTIMATED
VRSS | SQ YD | 500

Protect existing Memorial

Tree Clearing Limits
Approximately 100
Trees

Gain access from trail
and Parkway

620 ft long by
5 feet high

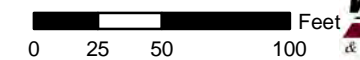


Main Stem of Bassett Creek Restoration Project

Construction Plan Station 135+00-120+00

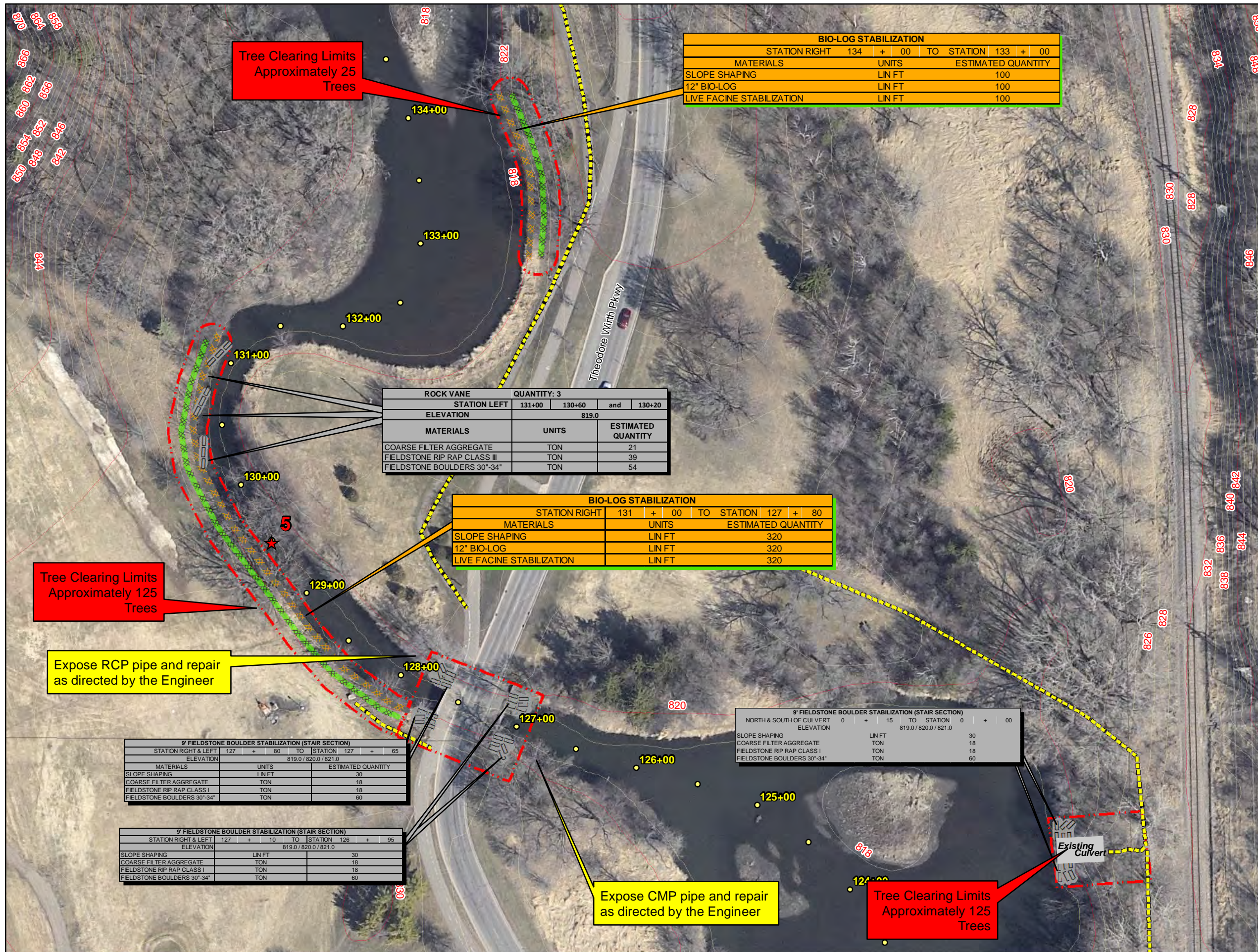
Legend

- ★ BCWMC Maintenance Locations
- Creek Stationing
- Access Route
- ▬ Fieldstone Wall
- Root Wads
- ▨ Fascine
- ▩ Bio Log
- ▭ Tree Clearing Limits
- ▭ Property Boundary



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

ENGINEER
DATE: 02/05/2014 LIC. NO.: 15998





Main Stem of Bassett Creek Restoration Project

Construction Plan Station 120+00-105+00

3' FIELDSTONE BOULDER STABILIZATION			
STATION LEFT	+	TO	STATION
118	+	40	118 + 20
ELEVATION 820			
MATERIALS	UNITS	ESTIMATED QUANTITY	
SLOPE SHAPING	LN FT	20	
COARSE FILTER AGGREGATE	TON	4	
FIELDSTONE RIP RAP CLASS I	TON	4	
FIELDSTONE BOULDERS 30"-34"	TON	10	

LIVE FACINE STABILIZATION			
STATION LEFT	+	TO	STATION
118	+	40	118 + 20
ELEVATION 820			
MATERIALS	UNITS	ESTIMATED QUANTITY	
SLOPE SHAPING	LN FT	20	
LIVE FACINE STABILIZATION	LN FT	20	

BIO-LOG STABILIZATION			
STATION LEFT	+	TO	STATION
117	+	68	117 + 68
ELEVATION 822.0 (MATCH EXISTING GRADES UNDER BRIDGE)			
MATERIALS	UNITS	ESTIMATED QUANTITY	
SLOPE SHAPING	LN FT	100	
12" BIO-LOG	LN FT	100	
LIVE FACINE STABILIZATION	LN FT	100	

BIO-LOG STABILIZATION			
STATION RIGHT	+	TO	STATION
119	+	20	118 + 20
ELEVATION 820			
MATERIALS	UNITS	ESTIMATED QUANTITY	
SLOPE SHAPING	LN FT	100	
12" BIO-LOG	LN FT	100	
LIVE FACINE STABILIZATION	LN FT	100	

3' FIELDSTONE RIP RAP STABILIZATION			
STATION RIGHT	+	TO	STATION
118	+	20	117 + 68
ELEVATION 822.0 (MATCH EXISTING GRADES UNDER BRIDGE)			
MATERIALS	UNITS	ESTIMATED QUANTITY	
SLOPE SHAPING	LN FT	52	
COARSE FILTER AGGREGATE	TON	20.8	
FIELDSTONE RIP RAP CLASS II	TON	20	

No Access onto Rail Road Property

Note:
Work from station 118+20 to 117+68 includes the following:
Reshape easterly side of easterly Bridge Pier (overflow)
Remove existing geotextile fabric
Stabilize with granular filter material and Class III Rip rap and salvaged rip rap as directed by the engineer

BIO-LOG STABILIZATION			
STATION RIGHT	+	TO	STATION
117	+	68	115 + 18
ELEVATION 822.0			
MATERIALS	UNITS	ESTIMATED QUANTITY	
SLOPE SHAPING	LN FT	250	
12" BIO-LOG	LN FT	250	
LIVE FACINE STABILIZATION	LN FT	250	

ROCK VANE QUANTITY: 4			
STATION RIGHT	+	TO	STATION
131+75	+		131+00
ELEVATION 820.0			
MATERIALS	UNITS	ESTIMATED QUANTITY	
COARSE FILTER AGGREGATE	TON	28	
FIELDSTONE RIP RAP CLASS III	TON	52	
FIELDSTONE BOULDERS 30"-34"	TON	72	

Tree Clearing Limits
Remove approximatley 60 Trees

Install two Root Wads:
Station 113+50 & 113+75
Elevation 817.0

ROCK VANE QUANTITY: 2			
STATION LEFT	+	TO	STATION
116+50	+		115+50
ELEVATION 817.0			
MATERIALS	UNITS	ESTIMATED QUANTITY	
COARSE FILTER AGGREGATE	TON	14	
FIELDSTONE RIP RAP CLASS III	TON	26	
FIELDSTONE BOULDERS 30"-34"	TON	36	

Tree Clearing Limits
Remove approximatley 15 Trees

BIO-LOG STABILIZATION			
STATION LEFT	+	TO	STATION
113	+	80	112 + 80
ELEVATION 817.0			
MATERIALS	UNITS	ESTIMATED QUANTITY	
SLOPE SHAPING	LN FT	100	
12" BIO-LOG	LN FT	100	
LIVE FACINE STABILIZATION	LN FT	100	

LIVE FACINE STABILIZATION			
STATION RIGHT & LEFT	+	TO	STATION
110	+	90	110 + 60
ELEVATION 817.0			
MATERIALS	UNITS	ESTIMATED QUANTITY	
SLOPE SHAPING	LN FT	60	
LIVE FACINE STABILIZATION	LN FT	60	

Rail Road Property
Access Permit Required

6' FIELDSTONE BOULDER STABILIZATION			
STATION RIGHT & LEFT	+	TO	STATION
110	+	75	110 + 45
ELEVATION 818.0			
MATERIALS	UNITS	ESTIMATED QUANTITY	
SLOPE SHAPING	LN FT	60	
COARSE FILTER AGGREGATE	TON	24	
FIELDSTONE RIP RAP CLASS I	TON	24	
FIELDSTONE BOULDERS 30"-34"	TON	60	

LIVE FACINE STABILIZATION			
STATION RIGHT & LEFT	+	TO	STATION
108	+	70	107 + 70
ELEVATION 818.0			
MATERIALS	UNITS	ESTIMATED QUANTITY	
SLOPE SHAPING	LN FT	200	
LIVE FACINE STABILIZATION	LN FT	200	

ROCK VANE QUANTITY: 2			
STATION RIGHT	+	TO	STATION
107+00	+		106+75
ELEVATION 818.0			
MATERIALS	UNITS	ESTIMATED QUANTITY	
COARSE FILTER AGGREGATE	TON	14	
FIELDSTONE RIP RAP CLASS III	TON	26	
FIELDSTONE BOULDERS 30"-34"	TON	36	

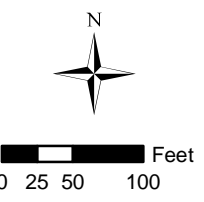
6' FIELDSTONE BOULDER STABILIZATION			
STATION RIGHT & LEFT	+	TO	STATION
108	+	70	107 + 70
ELEVATION 818.0			
MATERIALS	UNITS	ESTIMATED QUANTITY	
SLOPE SHAPING	LN FT	200	
COARSE FILTER AGGREGATE	TON	80	
FIELDSTONE RIP RAP CLASS I	TON	80	
FIELDSTONE BOULDERS 30"-34"	TON	200	

BIO-LOG STABILIZATION			
STATION LEFT	+	TO	STATION
107	+	70	106 + 00
ELEVATION 818.0			
MATERIALS	UNITS	ESTIMATED QUANTITY	
SLOPE SHAPING	LN FT	170	
12" BIO-LOG	LN FT	170	
LIVE FACINE STABILIZATION	LN FT	170	

Tree Clearing Limits
Remove approximatley 10 Trees

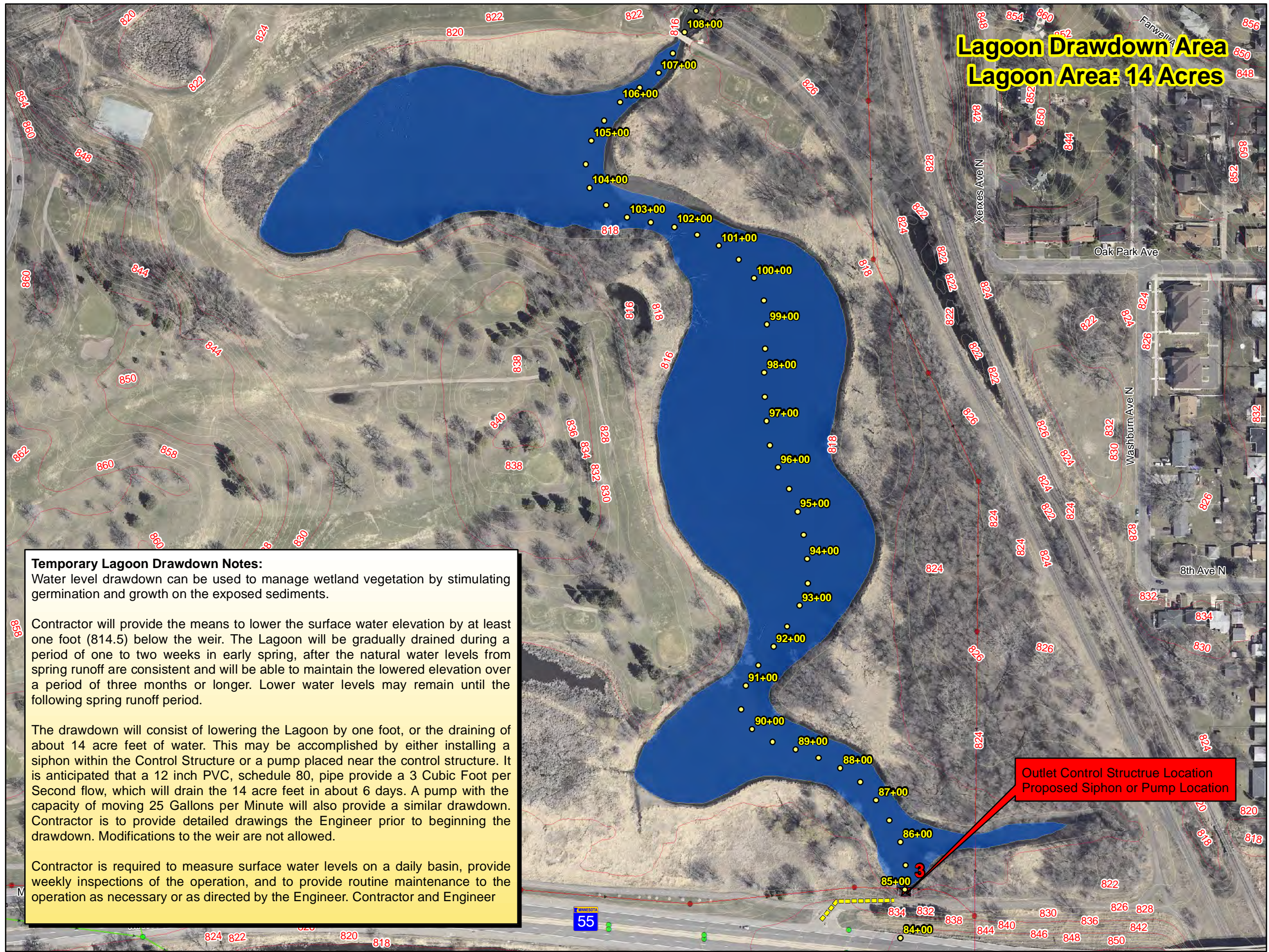
Legend

- ★ BCWMC Maintenance Locations
- Access Route
- Root Wads
- ▬ Bio Log
- ▬ Fieldstone Wall
- ▬ Fascine
- ▬ Tree Clearing Limits
- ▬ Property Boundaries



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

ENGINEER
DATE: 02/05/2014 LIC. NO.: 15998



**Lagoon Drawdown Area
Lagoon Area: 14 Acres**

Temporary Lagoon Drawdown Notes:
 Water level drawdown can be used to manage wetland vegetation by stimulating germination and growth on the exposed sediments.

Contractor will provide the means to lower the surface water elevation by at least one foot (814.5) below the weir. The Lagoon will be gradually drained during a period of one to two weeks in early spring, after the natural water levels from spring runoff are consistent and will be able to maintain the lowered elevation over a period of three months or longer. Lower water levels may remain until the following spring runoff period.

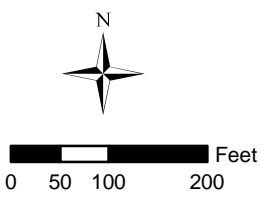
The drawdown will consist of lowering the Lagoon by one foot, or the draining of about 14 acre feet of water. This may be accomplished by either installing a siphon within the Control Structure or a pump placed near the control structure. It is anticipated that a 12 inch PVC, schedule 80, pipe provide a 3 Cubic Foot per Second flow, which will drain the 14 acre feet in about 6 days. A pump with the capacity of moving 25 Gallons per Minute will also provide a similar drawdown. Contractor is to provide detailed drawings the Engineer prior to beginning the drawdown. Modifications to the weir are not allowed.

Contractor is required to measure surface water levels on a daily basis, provide weekly inspections of the operation, and to provide routine maintenance to the operation as necessary or as directed by the Engineer. Contractor and Engineer



**Main Stem of
Bassett Creek
Restoration Project
Construction Plan
Station 107+00-85+00**

- Legend**
- Access Route
 - ★ BCWMC Maintenance Locations
 - Storm Sewer Manholes
 - Storm Sewer
 - Watermain
 - Sanitary Sewer
 - Sanitary Sewer Manhole



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

ENGINEER
 DATE: 02/05/2014 LIC. NO.: 15998



Main Stem of Bassett Creek Restoration Project

Construction Plan Station 85+00-71+00

Legend

- ★ BCWMC Maintenance Locations
- ▬ Access Route
- ▬ Bio Log
- ▬ Fascine
- ▬ Fieldstone Wall
- ▬ Tree Clearing Limits
- Storm Sewer Manholes
- ▬ Storm Sewer
- ▬ Watermain
- ▬ Sanitary Sewer
- Sanitary Sewer Manhole
- ▭ Property Boundary

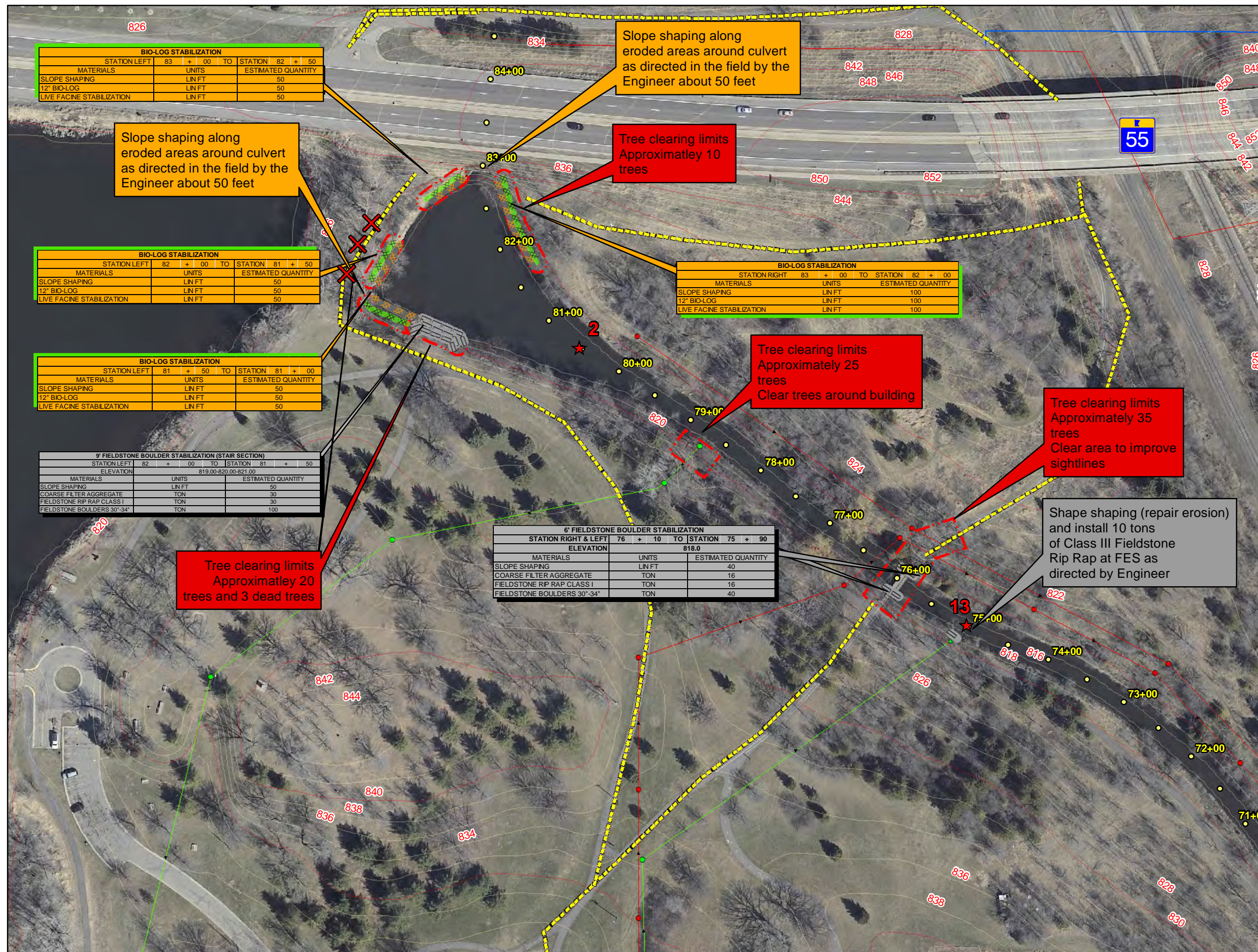


0 25 50 100 Feet



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

ENGINEER
DATE: 02/05/2014 LIC. NO.: 15998



BIO-LOG STABILIZATION		
STATION LEFT	UNITS	ESTIMATED QUANTITY
83 + 00 TO STATION 82 + 50		
SLOPE SHAPING	LN FT	50
12" BIO-LOG	LN FT	50
LIVE FACINE STABILIZATION	LN FT	50

Slope shaping along eroded areas around culvert as directed in the field by the Engineer about 50 feet

Slope shaping along eroded areas around culvert as directed in the field by the Engineer about 50 feet

Tree clearing limits Approximately 10 trees

BIO-LOG STABILIZATION		
STATION LEFT	UNITS	ESTIMATED QUANTITY
82 + 00 TO STATION 81 + 50		
SLOPE SHAPING	LN FT	50
12" BIO-LOG	LN FT	50
LIVE FACINE STABILIZATION	LN FT	50

BIO-LOG STABILIZATION		
STATION RIGHT	UNITS	ESTIMATED QUANTITY
83 + 00 TO STATION 82 + 00		
SLOPE SHAPING	LN FT	100
12" BIO-LOG	LN FT	100
LIVE FACINE STABILIZATION	LN FT	100

BIO-LOG STABILIZATION		
STATION LEFT	UNITS	ESTIMATED QUANTITY
81 + 50 TO STATION 81 + 00		
SLOPE SHAPING	LN FT	50
12" BIO-LOG	LN FT	50
LIVE FACINE STABILIZATION	LN FT	50

Tree clearing limits Approximately 25 trees
Clear trees around building

Tree clearing limits Approximately 35 trees
Clear area to improve sightlines

Shape shaping (repair erosion) and install 10 tons of Class III Fieldstone Rip Rap at FES as directed by Engineer

Tree clearing limits Approximately 20 trees and 3 dead trees

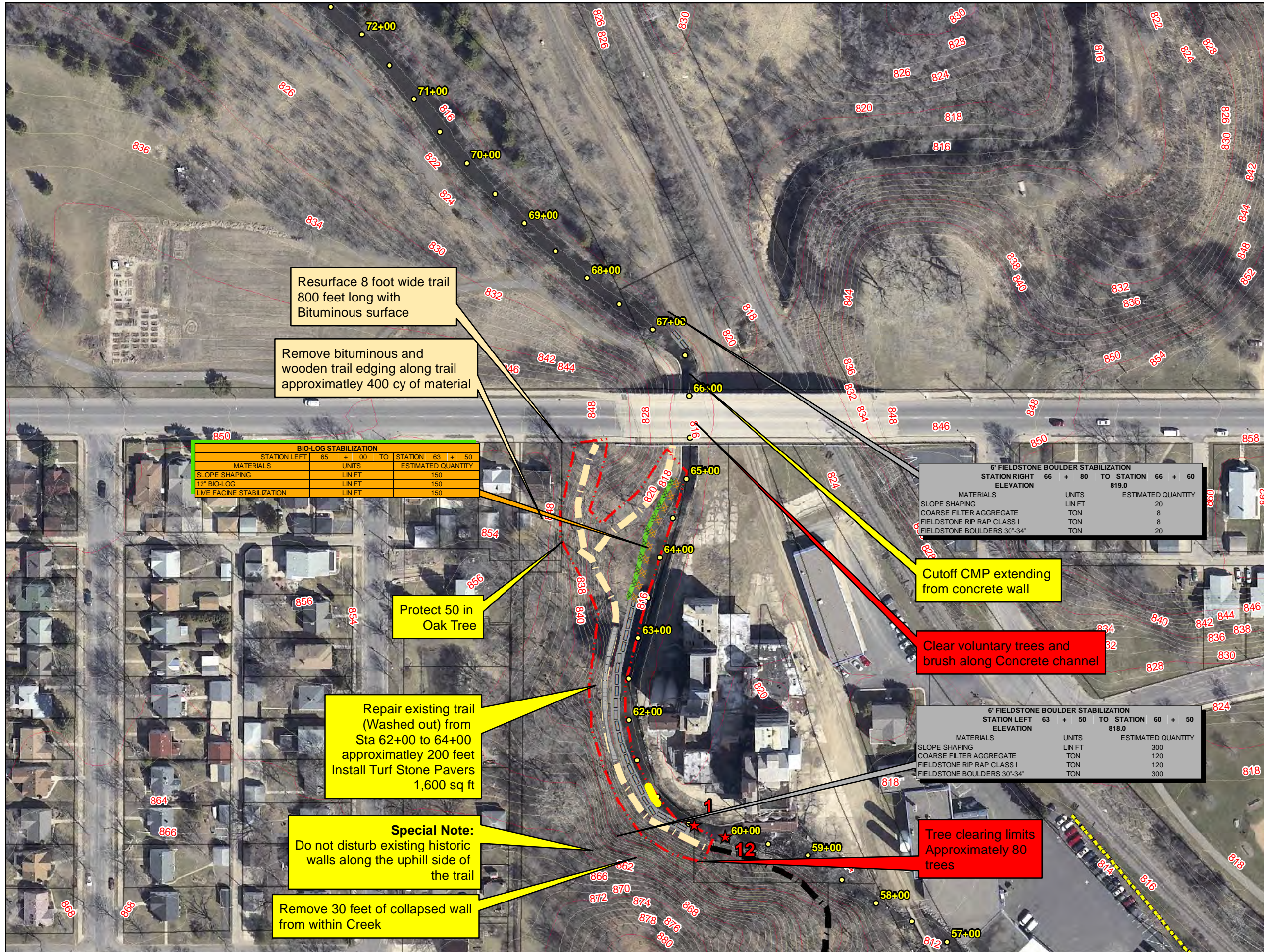
6' FIELDSTONE BOULDER STABILIZATION		
STATION RIGHT & LEFT	ELEVATION	ESTIMATED QUANTITY
76 + 10 TO STATION 75 + 90	818.0	
SLOPE SHAPING	LN FT	40
COARSE FILTER AGGREGATE	TON	16
FIELDSTONE RIP RAP CLASS I	TON	16
FIELDSTONE BOULDERS 30"-34"	TON	40

9' FIELDSTONE BOULDER STABILIZATION (STAIR SECTION)		
STATION LEFT	ELEVATION	ESTIMATED QUANTITY
82 + 00 TO STATION 81 + 50	819.00-820.00-821.00	
SLOPE SHAPING	LN FT	50
COARSE FILTER AGGREGATE	TON	30
FIELDSTONE RIP RAP CLASS I	TON	30
FIELDSTONE BOULDERS 30"-34"	TON	100



Main Stem of Bassett Creek Restoration Project

Construction Plan Station 71+00-58+00



Resurface 8 foot wide trail 800 feet long with Bituminous surface

Remove bituminous and wooden trail edging along trail approximately 400 cy of material

BIO-LOG STABILIZATION			
MATERIALS	STATION LEFT	TO STATION	ESTIMATED QUANTITY
SLOPE SHAPING	65 + 00	63 + 50	150
12" BIO-LOG			150
LIVE FACINE STABILIZATION			150

6" FIELDSTONE BOULDER STABILIZATION			
MATERIALS	STATION RIGHT	TO STATION	ESTIMATED QUANTITY
SLOPE SHAPING	66 + 80	66 + 60	20
COARSE FILTER AGGREGATE			8
FIELDSTONE RIP RAP CLASS I			8
FIELDSTONE BOULDERS 30"-34"			20

6" FIELDSTONE BOULDER STABILIZATION			
MATERIALS	STATION LEFT	TO STATION	ESTIMATED QUANTITY
SLOPE SHAPING	63 + 50	60 + 50	300
COARSE FILTER AGGREGATE			120
FIELDSTONE RIP RAP CLASS I			120
FIELDSTONE BOULDERS 30"-34"			300

Protect 50 in Oak Tree

Repair existing trail (Washed out) from Sta 62+00 to 64+00 approximately 200 feet Install Turf Stone Pavers 1,600 sq ft

Special Note: Do not disturb existing historic walls along the uphill side of the trail

Remove 30 feet of collapsed wall from within Creek

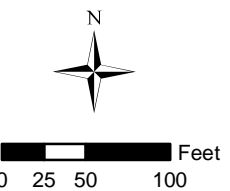
Cutoff CMP extending from concrete wall

Clear voluntary trees and brush along Concrete channel

Tree clearing limits Approximately 80 trees

Legend

- ★ BCWMC Maintenance Locations
- Restore Existing Trail
- Property Boundary
- Existing Trail
- Access Route
- Bio Log
- Fieldstone Wall
- Fascine
- Tree Clearing Limits



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

ENGINEER
DATE: 02/05/2014 LIC. NO.: 15998



Main Stem of Bassett Creek Restoration Project

Construction Plan Station 68+00-51+00

Legend

- BCWMC Maintenance Locations
- Property Boundary
- Access Route
- Fieldstone Wall
- Tree Clearing Limits

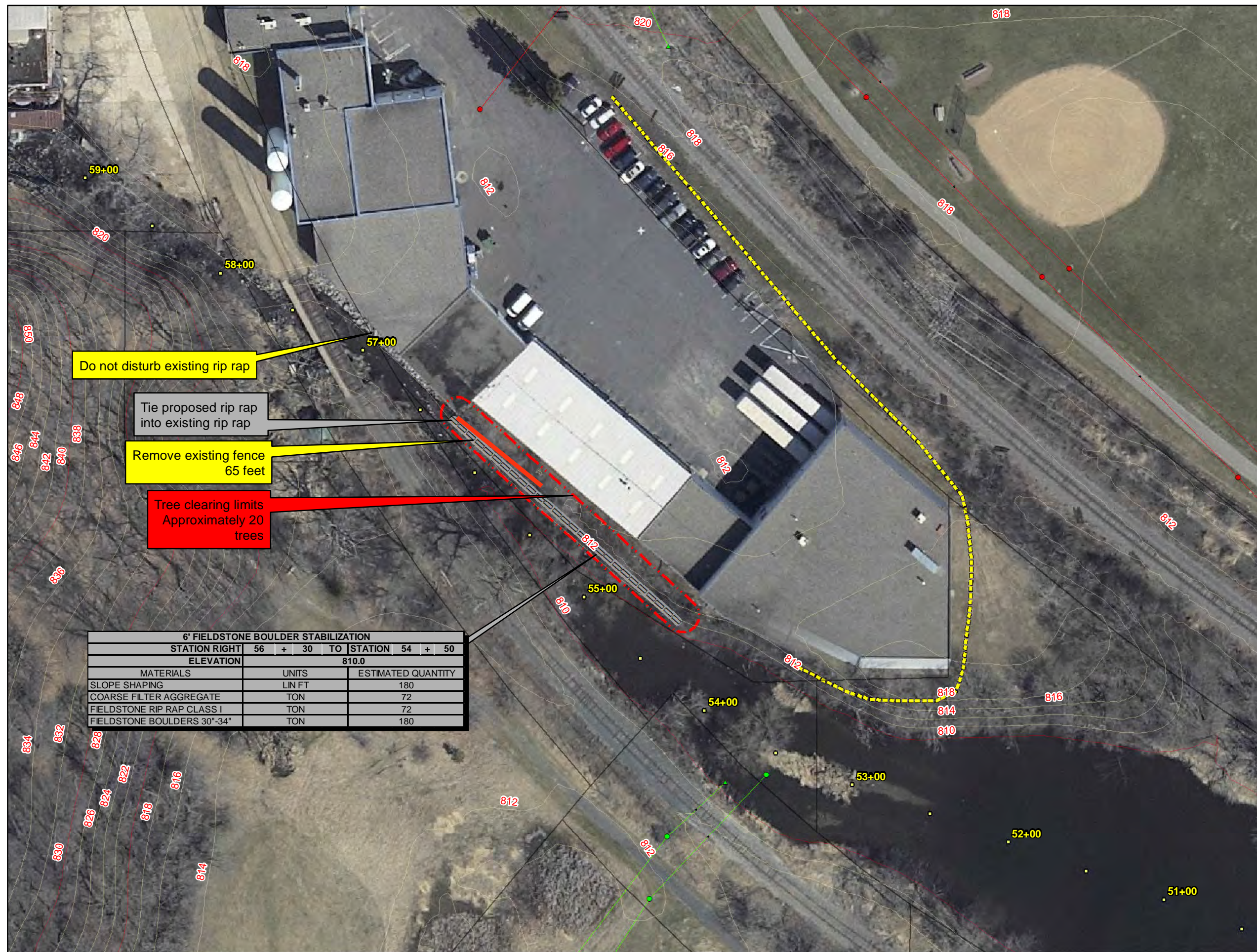


0 15 30 60 Feet



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

ENGINEER
DATE: 02/05/2013 LIC. NO.: 15998



STORMWATER POLLUTION PREVENTION PLAN (SWPPP) NARRATIVE

PROJECT SITE EVALUATION, ASSESSMENT, AND PLANNING

THIS NARRATIVE IS TO SERVE AS A GUIDANCE PLAN AND MUST BE AMENDED AND MODIFIED AS SITE CONDITIONS CHANGE DURING CONSTRUCTION.

PROJECT LOCATION/DESCRIPTION

PROJECT/SITE NAME: MAIN STEM OF BASSETT CREEK RESTORATION PROJECT
 PROJECT NUMBERS: CITY NO N/A WSB 1165-82
 PROJECT LOCATION: STREET: MINNEAPOLIS PARK AND RECREATION BOARD ROAD TO IVERING AVENUE CITY/TOWNSHIP: MINNEAPOLIS PARK AND RECREATION BOARD/MINNEAPOLIS COUNTY: HENNEPIN
 STATE: MINNESOTA ZIP: 55367
 LATITUDE/LONGITUDE: 44.989570, -93.320492 SECTION: 17 & 20 TOWNSHIP: 29 RANGE: 24

CONTACT INFORMATION/RESPONSIBLE PARTIES

THE CITY OF MINNEAPOLIS PARK AND RECREATION BOARD OWNS THE LAND, ADJACENT ROADS, AND BASEMENT AREAS ASSOCIATED WITH THE PROJECT. THE CITY OF MINNEAPOLIS PARK AND RECREATION BOARD IS THE OWNER PERMITTEE APPLYING FOR PERMIT COVERAGE AND WILL BE RESPONSIBLE FOR DEVELOPING THIS SWPPP AND ENSURING THE LONG-TERM MAINTENANCE OF THE POST-CONSTRUCTION PERMANENT STORMWATER MANAGEMENT SYSTEM, AS SPECIFIED IN THE SWPPP. THE CITY OF MINNEAPOLIS PARK AND RECREATION BOARD WILL ENSURE THAT THE DESCRIBED WORK IN THE SWPPP IS BEING COMPLETED BY THE PRIMARY CONTRACTOR.

OWNER/PERMITTEE: CITY OF MINNEAPOLIS PARK AND RECREATION BOARD (ANDREA WEBER RLA, PROJECT MANAGER)
 2117 WEST RIVER ROAD
 MINNEAPOLIS, MN 55411
 612-230-6400 / AWEBER@MINNEAPOLISPARKS.ORG

THE PRIMARY CONTRACTOR WILL ENTER INTO A CONTRACT WITH THE CITY OF MINNEAPOLIS PARK AND RECREATION BOARD TO COMPLETE THE REQUIRED WORK FOR THIS PROJECT. THE PRIMARY CONTRACTOR WILL BECOME (UNDER CONTRACT) A CO-PERMITTEE ON THE NPDES PERMIT (THROUGH EXECUTION OF A NPDES PERMIT MODIFICATION FORM), AND THEREBY AGREE TO IMPLEMENT THIS SWPPP IN COOPERATION WITH THE CITY OF MINNEAPOLIS PARK AND RECREATION BOARD. THE PRIMARY CONTRACTOR IS RESPONSIBLE FOR DEVELOPING A CHAIN OF RESPONSIBILITY PRIOR TO STARTING CONSTRUCTION (REFER TO SWPPP AMENDMENT SECTION). THE NPDES PERMIT MODIFICATION FORM SHALL BE SUBMITTED TO THE MPCA AFTER THE PROJECT IS AWARDED TO THE PRIMARY CONTRACTOR, PRIOR TO LETTING THE PROJECT.

THE PRIMARY CONTRACTOR WILL INSURE THAT INDIVIDUALS OVERSEEING OR IMPLEMENTING THE SWPPP HAVE BEEN PROPERLY TRAINED AND THAT CERTIFICATIONS WILL BE MADE AVAILABLE UPON REQUEST. THIS INCLUDES ANY SUB-CONTRACTORS THAT THE PRIMARY CONTRACTOR EMPLOYS UNDER SEPARATE CONTRACT. THE PRIMARY CONTRACTOR WILL PROVIDE THE CONTACT INFORMATION FOR THE SITE SUPERINTENDENT/FOREMAN, ESC SUPERVISOR, AND BMP INSTALLERS.

THE PRIMARY CONTRACTOR WILL PERFORM A PRECONSTRUCTION SITE VISIT TO ADDRESS ANY AREAS OF CONCERN PERTAINING TO ENVIRONMENTAL COMPLIANCE. THE PRIMARY CONTRACTOR WILL IMPLEMENT AND MAINTAIN BMPs FOR THE DURATION OF CONSTRUCTION PROJECT. THE PRIMARY CONTRACTOR WILL COMPLETE THE REQUIRED SITE INSPECTIONS TO REMAIN IN COMPLIANCE WITH NPDES PERMIT REQUIREMENTS PART II.B, II.C, III.B-E, IV, V, AND APPLICABLE CONSTRUCTION ACTIVITY REQUIREMENTS FOUND IN APPENDIX A, PART C.

CONTRACTOR/PERMITTEE: (TO BE DETERMINED THROUGH TRANSFER OF NPDES-CSW PERMIT)

WSB & ASSOCIATES HAS BEEN CONTRACTED BY THE CITY OF MINNEAPOLIS PARK AND RECREATION BOARD TO DEVELOP THE SWPPP PLAN FOR THIS PROJECT. THIS SWPPP WAS PREPARED BY AN INDIVIDUAL THAT HAS BEEN PROPERLY TRAINED TO ADHERE TO THE REQUIREMENTS OF THE MPCA AND THE NPDES PERMIT. CERTIFICATION CARDS ARE AVAILABLE UPON REQUEST. WSB & ASSOCIATES WILL OFFER GUIDANCE FOR COMPLIANCE WITH THE NPDES PERMIT BEFORE, DURING, AND AFTER CONSTRUCTION OF THE PROJECT.

SWPPP DEVELOPER:
 WSB & ASSOCIATES, INC. (ERICK FRANCIS)
 701 XENIA AVE. SOUTH, SUITE 300
 MINNEAPOLIS, MN 55416
 763-512-5251 / EFRANCIS@WSBENG.COM

WATER RESOURCE ENGINEER:
 WSB & ASSOCIATES, INC. (PETE WILLENBRING)
 701 XENIA AVE. SOUTH, SUITE 300
 MINNEAPOLIS, MN 55416
 763-287-7188 / PWILLENBRING@WSBENG.COM

AGENCY	PERMIT	NAME	PHONE NUMBER/E-MAIL
MPCA (EMERGENCY)	N/A	STATE DUTY OFFICER	1-800-422-0798
MPCA	NPDES-CSW #C000XXXX	TYLER HASTINGS	651-757-2882 / TYLER.HASTINGS@STATE.MN.US
ACOE	TBD	MELISSA JENNY	651-290-5363 / MELISSA.M.JENNY@USACE.ARMY.MIL
DNR	TBD	KATE DREWRY	651-259-5753 / KATE.DREWRY@STATE.MN.US
BASSETT CREEK WSC	WCA	KAREN CHANDLER	952-832-2601 / KCHANDLER@BARR.COM
WATERSHED DISTRICT	CIP APPROVAL	KAREN CHANDLER	N/A

PROJECT DESCRIPTION & SCHEDULE

The Main Stem of Bassett Creek Restoration Project consists of stream and native vegetation restoration project in selected areas of a 5,000 foot reach of the Main Stem of Bassett Creek to improve upon the existing habitat along the creek and to reduce erosion and pollution to the downstream waters.

TENTATIVE CONSTRUCTION SCHEDULE (CONTRACTOR SHOULD PROVIDE ESTIMATED CONSTRUCTION SCHEDULE TO THE ENGINEER)	
CONSTRUCTION ACTIVITIES:	ESTIMATED DATES OF SOIL DISTURBANCE ACTIVITIES:
CLEARING AND GRUBBING OPERATIONS	SPRING 2014
STREAMBANK STABILIZATION	SPRING - SUMMER 2014
VEGETATION ESTABLISHMENT	SUMMER - FALL 2014
WARRENTY PERIOD	FALL 2014 - FALL 2017

PRE-CONSTRUCTION IMPERVIOUS SURFACE AND DISTURBED AREA CALCULATIONS

TOTAL AREA TO BE DISTURBED = 2.3 ACRES
 IMPERVIOUS AREA: PRE-CONSTRUCTION = 0.0
 NET INCREASE OF IMPERVIOUS AREA = 0.0

LOCATION OF SWPPP COMPONENTS

DESCRIPTION	TITLE	LOCATION
SWPPP NARRATIVE	STORM WATER POLLUTION PREVENTION PLAN NARRATIVE	SHEET 22
SITE CONDITIONS	STORM WATER POLLUTION PREVENTION PLAN NARRATIVE	SHEET 22
SITE MAP	STEEP SLOPES (3:1), IMPERVIOUS SURFACES, POTENTIAL POLLUTANT GENERATING ACTIVITIES, SOILS, WATER RESOURCES, DNR FISH EXCLUSION "WORK IN WATER RESTRICTIONS- REFER TO SWPPP"	PROJECT SPECIFICATIONS
CONSTRUCTION PHASING/STAGING & AREAS NOT TO BE DISTURBED	STORM WATER POLLUTION PREVENTION PLAN NARRATIVE	SHEET 26-31
DIRECTION OF FLOW (PRE- & POST- CONSTRUCTION)	DRAINAGE PLAN	SHEET 26-31
TEMPORARY EROSION & SEDIMENT CONTROL BMPs	TEMPORARY EROSION AND SEDIMENT CONTROL PLAN	SHEET 32
PERMANENT EROSION CONTROL BMPs	TURF ESTABLISHMENT PLAN	SHEET 26-31
STORM SEWER	DRAINAGE PLAN	N/A
GRADING	GRADING PLAN	SHEET 13-21
ESTIMATED BMP QUANTITIES	ESTIMATED QUANTITIES	PROJECT SPECIFICATIONS
BMP DETAILS		SHEET 32
HYDROLOGIC/WATER QUALITY MODELING		N/A

EXISTING SITE CONDITIONS, SOILS, & EXPECTED PRECIPITATION

SOILS AND NATIVE TOPSOIL: NATIVE TOPSOIL WILL BE STRIPPED AND STOCKPILED FOR FINAL GRADING OPERATIONS, WHERE INDICATED IN THE CONSTRUCTION PLANS AND SPECIFICATIONS. METHODS AND EQUIPMENT TO MINIMIZE SOIL COMPACTION (IN PROPOSED INFILTRATION AREAS, DRIP LINE OF TREES TO BE PRESERVED, ETC.) SHALL BE DETERMINED BY THE CONTRACTOR'S SWPPP AMENDMENT. THE FOLLOWING USDA-NRCS MAPPED SOILS ARE SHOWN AS "NOT HIGHLY ERODIBLE", POTENTIALLY HIGHLY ERODIBLE, AND HIGHLY ERODIBLE" ON THE SWPPP SITE MAP.

USDA-NRCS MAPPED SOIL SURVEY UNIT NO., NAME, TEXTURE, SLOPE PERCENTAGE	APPROXIMATE PARTICLE SIZE RANGE (MM)		
	SAND (0.05-2.00)	SILT (0.002-0.05)	CLAY (<0.002)
U1A URBAN LAND	50-70%	0-50%	15-20%
U2A UDORTHENTS	20-50%	50-67%	0-27%

REVISION NO.	DATE	EXPLANATION

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.

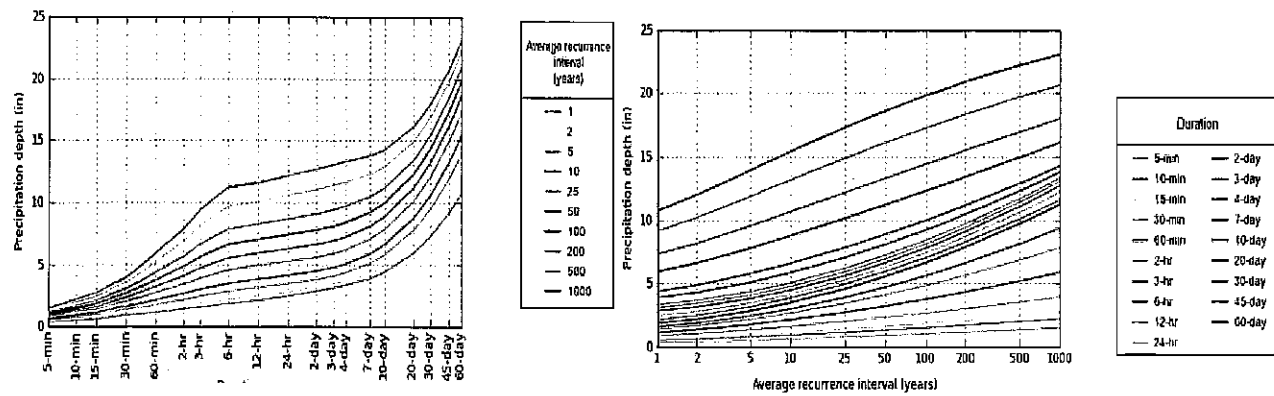
DATE: 02/05/2014

ENGINEER: [Signature]

701 Xenia Avenue South, Suite 300
 Minneapolis, MN 55416
 www.wsbeng.com

WSB & Associates, Inc.
 INFRASTRUCTURE ENGINEERING • PLANNING • CONSTRUCTION

EXPECTED AMOUNT, FREQUENCY, INTENSITY, AND DURATION OF PRECIPITATION: THE NOAA ATLAS 14 POINT PRECIPITATION FREQUENCY ESTIMATE FOR THE PROJECT LOCATION WAS REVIEWED ON 01/22/2014. THE RESULTS OF THIS REVIEW SHOWN BELOW: THIS INFORMATION IS TO BE USED FOR ANTICIPATED INSPECTION FREQUENCY AND ESTIMATING CONSTRUCTION ACTIVITIES. THIS INFORMATION DOES NOT NECESSARILY REFLECT ANY DESIGN CRITERIA.



DESCRIPTION OF RECEIVING WATERS: THIS HAS PROJECT WILL DISCHARGE DIRECTLY INTO BASSETT CREEK.

HYDROLOGIC AND WATER QUALITY MODELING DATA IS AVAILABLE UPON REQUEST.

DESCRIPTION OF IMPAIRED WATERS OR WATER SUBJECT TO TMDLS: A SPECIAL AND IMPAIRED WATERS SEARCH WAS COMPLETED USING THE MPCA SEARCH ENGINE (<http://pca-gis02.pca.state.mn.us/csw/index.html>) ON 1/22/2014. BASED ON THAT REVIEW, THIS RIVER SEGMENT REQUIRES A TMDL PLAN TO BE WRITTEN FOR: CHLORIDE; FECAL COLIFORM; FISHES BIOASSESSMENTS. THESE IMPAIRMENTS AFFECT AQUATIC LIFE, AQUATIC RECREATION.

ADDITIONAL BMPS FOR SPECIAL OR IMPAIRED WATERS DURING CONSTRUCTION ACTIVITY (APPENDIX A)

ALL REQUIREMENTS IN APPENDIX A ARE IN ADDITION TO BMPS ALREADY SPECIFIED IN THE PERMIT. WHERE PROVISIONS OF APPENDIX A CONFLICT WITH REQUIREMENTS ELSEWHERE IN THE PERMIT, THE PROVISIONS IN APPENDIX A TAKE PRECEDENCE. ALL BMPS USED TO COMPLY WITH THIS APPENDIX MUST BE DOCUMENTED IN THE SWPPP FOR THE PROJECT (APPENDIX A).

C.1.A EXPOSED SOILS: CONTRACTOR SHALL STABILIZE ALL EXPOSED SOIL AREAS WITHIN (7) DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS TEMPORARILY OR PERMANENTLY CEASED (APPENDIX A.C.1.A).

C.3 BUFFER ZONE: THIS PROJECT CONSISTS OF STABILIZING ERODING STREAMBANKS AND IT IS NOT FEASIBLE TO MAINTAIN A BUFFER ALONG THE CREEK. ADDITIONAL EROSION AND SEDIMENT CONTROLS SHALL BE IMPLEMENTED TO PROVIDE ADDITIONAL PROTECTIONS ALONG THE CREEK, SUCH AS WOOD CHIPS, BIOLOGS, SILT FENCE, AND TEMPORARY SOIL STABILIZATION AND SEEDING. IN ADDITION, THIS PROJECT WILL BE PHASED TO LIMIT OVERALL DISTURBANCES.

POTENTIAL CONTAMINATED PROPERTIES		
SITE ID	RISK CLASSIFICATION	ENVIRONMENTAL CONCERNS
1	LOW	MISCELLANEOUS FILL

PHASING/STAGING & AREAS NOT TO BE DISTURBED

THE PRESERVED AREAS OF EXISTING VEGETATION WILL BE IDENTIFIED ON THE PLAN SHEETS AS "DO NOT DISTURB AREA". THERE IS NO CONSTRUCTION PHASING OR STAGING DEFINED BY THE OWNER FOR THIS PROJECT. THE SCHEDULE FOR INSTALLING TEMPORARY BMPS SHALL BE INCORPORATED INTO THE CONTRACTOR'S SCHEDULE FOR EACH CONSTRUCTION STAGE AND PRESENTED TO THE OWNER'S REPRESENTATIVE. THE PROJECT'S CONSTRUCTION PHASING AND STAGING IS DEFINED BY THE "CONSTRUCTION STAGING & TRAFFIC CONTROL PLAN" AND PROJECT SPECIFICATIONS.

ENVIRONMENTALLY SENSITIVE AREAS

STEEP SLOPES: EXISTING AND PROPOSED SLOPES 1 IN 3 (33.33% AND STEEPER) THAT ARE PROPOSED TO BE DISTURBED ARE ILLUSTRATED ON THE GRADING PLAN. STEEP SLOPES MAYBE TEMPORARILY CREATED DURING GRADING OPERATIONS, AT WHICH TIME TEMPORARY BMPS MUST BE IMPELMENTED BY THE CONTRACTOR (THROUGH AN APPROVED SWPPP AMENDMENT) WITHIN 48 HOURS OF NO LONGER WORKING THE STEEP SLOPE.

CONTAMINATED PROPERTIES: THE MPCA'S "WHAT'S IN MY NEIGHBORHOOD" DATABASE (PCA-GIS02.PCA.STATE.MN.US/WIMN2/INDEX.HTML) WAS REVIEWED ON 01/22/2014. THE RESULTS OF THIS REVIEW SHOW ONE KNOWN CONTAMINATED PROPERTIES OR LEAK SOURCES LOCATED WITHIN AND ADJACENT TO THE PROJECT LIMITS. NO PRE-EXISTING HAZARDOUS MATERIALS OR WASTES ARE ANTICIPATED TO BE IMPACTED BY THE PROJECT. A PHASE I ENVIRONMENTAL STUDY WAS COMPLETED AS PART OF THE FEASIBILITY STUDY FOR THIS PROJECT AND THERE ARE NO ANTICIPATED CONTIMNATENS IDENTIFIED IN THE STUDY IN THE AREAS TO BE RESTORED.

STORMWATER POLLUTION MITIGATION MEASURES (AS IDENTIFIED FROM ENVIRONMENTAL REVIEW): NO FORMAL ENVIRONMENTAL REVIEW WAS REQUIRED FOR THIS PROJECT, THEREFORE, NO ADDITIONAL STORMWATER RELATED MITIGATION MEASURES APPLY.

KARST AREAS: THERE ARE NO KNOWN KARST AREAS WITHIN OR ADJACENT TO THE PROJECT LIMITS.

SITE PLAN REQUIRED AREAS: NO AREAS OF "HIGH ENVIRONMENTAL RISKS" ARE KNOWN TO BE LOCATED WITHIN OR IMMEDIATELY ADJACENT TO THE PROJECT LIMITS.

FLOOD CONTINGENCY PLAN: NO PROJECT ACTIVITIES ARE LOCATED WITHIN A 100-YEAR FLOODPLAIN OR FLOODWAY, THEREFORE, A FLOOD CONTINGENCY PLAN IS NOT REQUIRED TO BE PROVIDED BY THE CONTRACTOR. THE PROJECT ENGINEER (AT THEIR DISCRETION) MAY REQUIRE A PREVENTATIVE FLOOD CONTINGENCY PLAN FOR SPECIFIC PROJECT ACTIVITIES AND AREAS THAT ARE NOT LOCATED IN A 100-YEAR FLOODPLAIN OR FLOODWAY.

FISH EXCLUSION DATES: CONTRACTOR IS PROHIBITED FROM CONDUCTING IN-STREAM WORK DURING THE FISH SPAWNING AND MIGRATION DATES OF APRIL 15 TO JUNE 30 FOR NON-TROUT WATERS. IF WORK MUST BE CONDUCTING DURING THIS TIMEFRAME, CONTRACTOR SHALL CONTACT THE LOCAL DNR FISHERIES MANAGER FOR WRITTEN APPROVAL PRIOR TO CONDUCTING THE IN-STREAM WORK.

AQUATIC INVASIVE SPECIES: ADD LANGUAGE FROM 2109-021 DNR PERMIT

WETLANDS

THERE ARE WETLANDS ON THE THROUGHOUT THE PROJECT BOUNDARY AND MUST BE PROTECTED TO THE MAXIMUM EXTENT POSSIBLE. WETLAND IMPACTS ARE NOT ANTICIPATED AS PART OF THIS PROJECT. PERMITTED AREAS OF WETLAND IMPACT WILL BE PROTECTED WITH SILT FENCE ALONG THE PERIMETER OF THE FILL OR EXCAVATION LIMITS.

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND TO MY KNOWLEDGE IT COMplies WITH ALL APPLICABLE REQUIREMENTS UNDER THE LAWS OF THE STATE OF MINNESOTA.	
ENGINEER DATE: 02/05/2014 UG. NO. 15898	REVISION NO. DATE
PLAN BY: ESF CHECKED BY: PH PROJECT NO: 1165-82 RECORD COPY BY:	AS NOTED
MAIN STEM OF BASSETT CREEK RESTORATION PROJECT MINNEAPOLIS PARK AND RECREATION BOARD, MINNESOTA	
701 Xenia Avenue South, Suite 300 Minneapolis, MN 55416 www.wsb.org	763.461.4600 Fax 763.561.1700 WSB & ASSOCIATES, INC. INFRASTRUCTURE • ENGINEERING • PLANNING • CONSTRUCTION

POTENTIAL SOURCES OF POLLUTION

CONSTRUCTION ACTIVITIES ASSOCIATED WITH POTENTIAL POLLUTANTS (CHECK IF POLLUTANT APPLIES TO SITE.)		
ACTIVITY TYPE	POLLUTANT	VISUALLY OBSERVABLE
SOIL DISTURBANCE		
<input checked="" type="checkbox"/> INSTALLATION OF STABILIZED EXITS, TURBID WATER, CLOUDY AIR SEDIMENT AND EROSION CONTROL BMPs	SEDIMENT AND ORGANICS, FUGITIVE DUST	TURBID WATER, CLOUDY AIR
<input checked="" type="checkbox"/> CLEAR/GRUB	SEDIMENT AND ORGANICS, FUGITIVE DUST	TURBID WATER, CLOUDY AIR
<input checked="" type="checkbox"/> IMPORT/EXPORT OPERATIONS	SEDIMENT, FUGITIVE DUST	TURBID WATER, CLOUDY AIR
<input checked="" type="checkbox"/> REMOVALS/COMPACTION	SEDIMENT, FUGITIVE DUST	TURBID WATER, CLOUDY AIR
<input checked="" type="checkbox"/> MASS/FINE GRADING	SEDIMENT, FUGITIVE DUST	TURBID WATER, CLOUDY AIR
<input checked="" type="checkbox"/> EXCAVATIONS, TRENCHING	SEDIMENT, FUGITIVE DUST	TURBID WATER, CLOUDY AIR
<input checked="" type="checkbox"/> TOPSOIL STRIPPING, STOCKPILING	SEDIMENT, FUGITIVE DUST	TURBID WATER, CLOUDY AIR
ASPHALT		
<input type="checkbox"/> STREET CONSTRUCTION, IMPROVEMENTS	HYDROCARBONS, FUGITIVE DUST	OILY SHEEN, CLOUDY AIR
<input type="checkbox"/> STREET REMOVAL, DEMOLITION	HYDROCARBONS, FUGITIVE DUST	OILY SHEEN, CLOUDY AIR
CONCRETE LADEN LIQUID		
<input type="checkbox"/> CURB AND GUTTER, MANHOLE STRUCTURES	PH	CLOUDY TO MILKY WATER
<input type="checkbox"/> SIDEWALKS, DRIVEWAY APRONS	PH	CLOUDY TO MILKY WATER
<input type="checkbox"/> FOUNDATIONS, BRIDGE ABUTMENTS	PH	CLOUDY TO MILKY WATER
<input type="checkbox"/> WET/DRY PAVEMENT CUTTING, REMOVAL/DEMO	PH, FUGITIVE DUST	CLOUDY TO MILKY WATER, CLOUDY AIR
<input type="checkbox"/> MASONRY, WASHOUT/CLEAN UP	PH	CLOUDY TO MILKY WATER
GENERAL		
<input checked="" type="checkbox"/> LANDSCAPE	CONTAINERS, MULCH, SOIL, ORGANIC MATERIALS,	VARIES
<input type="checkbox"/> OTHER POTENTIAL SOURCES OF POLLUTION:		

POLLUTION PREVENTION MANAGEMENT MEASURES

CONTRACTOR WILL COMPLY WITH ALL OF THE POLLUTION PREVENTION AND MANAGEMENT MEASURES IDENTIFIED IN THE NPDES-CSW PERMIT. CONTRACTOR WILL SUBMIT A SPILL PREVENTION AND COUNTER MEASURE PLAN (SPCME) TO THE ENGINEER PRIOR TO ANY CONSTRUCTION ACTIVITY. THE SPCME MUST SATISFACTORILY ADDRESS (AT A MINIMUM) THE FOLLOWING NPDES REQUIREMENTS BY THE PROPOSED IMPLEMENTATION AND MAINTENANCE OF APPROPRIATE BMPs:

NO-EXPOSURE: CONSTRUCTION AND BUILDING PRODUCTS (THAT HAVE THE POTENTIAL TO LEACH POLLUTANTS), PESTICIDES, HERBICIDES, INSECTICIDES, FERTILIZERS, TREATMENT CHEMICALS, AND LANDSCAPING MATERIALS MUST BE UNDER COVER (PLASTIC SHEETING OR TEMPORARY ROOFS) TO MINIMIZE CONTACT WITH STORMWATER AND PRECIPITATION.

SOLID WASTE: (SEDIMENT, ASPHALT, CONCRETE MILLINGS, CONSTRUCTION, AND DEMOLITION DEBRIS) AND OTHER WASTES MUST BE DISPOSED OF PROPERLY AND SHALL COMPLY WITH MPCA DISPOSAL REQUIREMENTS (CH. 7035).

HAZARDOUS MATERIALS: (E.G. GAS, DIESEL, OIL, ANTIFREEZE, PAINT SOLVENTS, SOAPS, DETERGENTS, WOOD PRESERVATIVES, CLEANING SOLVENTS, CURING COMPOUNDS, ACIDS, ETC.) MUST BE STORED IN SEALED CONTAINERS (WITH SECONDARY SPILL CONTAINMENT) IN RESTRICTED ACCESS AREAS TO PREVENT VANDALISM. STORAGE AND DISPOSAL OF HAZARDOUS WASTES AND MATERIALS MUST BE IN COMPLIANCE WITH MPCA REGULATIONS (CH. 7045).

PORTABLE TOILETS: MUST BE POSITIONED AND SECURED SO THEY ARE NOT TIPPED OR KNOCKED OVER (PART IV.F.1.E).

EQUIPMENT/VEHICLE FUELING, EXTERNAL WASHING, AND MAINTENANCE PRACTICES: WHEN VEHICLE FUELING OR EXTERNAL WASHING MUST OCCUR ON-SITE, THE ACTIVITY IS LIMITED TO A CONTAINED PORTION OF THE STAGING AREA, UNLESS INFEASIBLE THROUGH SWPPP AMENDMENT. PROCEDURES FOR SPILL RESPONSE AND MATERIALS FOR CONTAINMENT AND CLEAN UP (DRIP PANS, DRY ABSORBENTS, AND SPILL KITS) WILL BE AVAILABLE AT ALL TIMES ON-SITE. ENGINE DEGREASING IS PROHIBITED ON-SITE.

CONCRETE, STUCCO, AND OTHER WASHOUT WASTES: CONTRACTORS/SITE OPERATOR MUST SUBMIT A CONCRETE WASHOUT PLAN TO THE PROJECT ENGINEER FOR APPROVAL, IF WASHOUT OPERATIONS WILL BE CONDUCTED ON-SITE. TEMPORARY OR LONG-TERM STORAGE OF WASHOUT WASTE IS PROHIBITED ON-SITE (SLURRY MUST BE HAULED IMMEDIATELY OFF-SITE). ALL LIQUID AND SOLID WASTES

MUST NOT CONTACT THE GROUND, AND THERE MUST NOT BE RUNOFF FROM THE WASHOUT OPERATIONS OR AREAS. LIQUID AND SOLID WASTES MUST BE DISPOSED OF PROPERLY AND IN COMPLIANCE WITH MPCA REGULATIONS.

BURNING: BURNING OF GARBAGE, CONSTRUCTION DEBRIS, TREES, BRUSH, OR OTHER VEGETATIVE MATERIAL IS NOT ALLOWED ON SITE, UNLESS PRIOR APPROVAL IS GRANTED BY THE PROJECT ENGINEER.

APPLICABLE FEDERAL, TRIBAL, STATE OR LOCAL PROGRAMS

THE PROJECT FALLS UNDER THE JURISDICTION OF SEVERAL ENTITIES, AS IDENTIFIED IN THE "AGENCY CONTACTS" TABLE OF PAGE 1 OF THE SWPPP. THE MORE STRINGENT OF LOCAL VS. STATE VS. FEDERAL RULES SHALL APPLY WHERE THEY CONFLICT. INFORMATION PERTAINING TO THE STATE NPDES PERMIT CAN BE FOUND AT: (HTTP://WWW.PCA.STATE.MN.US/INDEX.PHP/WATER/WATER-TYPES-AND-PROGRAMS/STORMWATER/CONSTRUCTION-STORMWATER/INDEX.HTML)

SEQUENCE OF CONSTRUCTION/TIMING OF BMP INSTALLATION:

NO CONSTRUCTION OPERATIONS, INCLUDING REMOVALS, THAT REQUIRE EROSION & SEDIMENT CONTROL PER THE SWPPP CAN COMMENCE UNTIL THE CONTRACTOR'S EROSION CONTROL SUPERVISOR CERTIFIES THE PROPER INSTALLATION OF BMP'S AND A CHAIN OF RESPONSIBILITY FOR SWPPP IMPLEMENTATION IS CREATED FOR ALL OPERATORS ON THE SITE. PERIMETER SEDIMENT CONTROLS (SILT FENCE, INLET PROTECTION, CONSTRUCTION ENTRANCES, ETC.) SHALL BE INSTALLED PRIOR TO THE START OF CONSTRUCTION. THESE PRACTICES SHALL REMAIN IN PLACE UNTIL FINAL STABILIZATION IS ACHIEVED. CONTRACTOR SHALL IMPLEMENT THE NECESSARY ON SITE BMP'S IN ACCORDANCE WITH THE NPDES PERMIT REQUIREMENTS TO PREVENT NUISANCE CONDITIONS (MN RULES 7050.2010) FROM ANY DISCHARGES UNDER COVERAGE OF THE NPDES PERMIT. IN SOME CASES, MULTIPLE OR REDUNDANT APPLICATIONS OF SOME BMP'S MAY BE NEEDED TO MEET THESE REQUIREMENTS.

INSPECTION, RECORD KEEPING, & SWPPP AMENDMENTS

- THE SWPPP CHAIN OF RESPONSIBILITY MUST BE AMENDED BY THE PRIMARY CONTRACTOR WHEN THE IDENTITY OF RESPONSIBLE OPERATORS (SUB-CONTRACTORS) ARE KNOWN.
- THE CONTRACTOR/SITE OPERATOR MUST INSPECT THE ENTIRE CONSTRUCTION SITE AT LEAST ONCE EVERY SEVEN (7) DAYS DURING ACTIVE CONSTRUCTION AND WITHIN 24 HOURS AFTER A RAINFALL EVENT GREATER THAN 0.5 INCHES IN 24 HOURS. THE CONTRACTOR SHALL PROVIDE A RAINFALL GAUGE ON-SITE, WITHIN ONE MILE OF THE SITE, OR SOURCE OF THE WEATHER REPORTING SYSTEM THAT USES SITE SPECIFIC RAINFALL DATA FROM RADAR SUMMARIES. THE LOCATION AND SOURCE OF THE RAINFALL GAUGE OR REPORTING SYSTEM MUST BE DOCUMENT IN THE FIRST SWPPP INSPECTION REPORT.
- ALL INSPECTIONS AND MAINTENANCE CONDUCTED MUST BE RECORDED IN WRITING AND RETAINED WITH THE SWPPP IN ACCORDANCE WITH PART III.D OF THE NPDES CONSTRUCTION PERMIT. AMENDMENTS TO THE SWPPP WILL BE MADE BY THE PROJECT ENGINEER OR THE CONTRACTOR AFTER WRITTEN APPROVAL BY THE PROJECT OWNER (OR DESIGNATED REPRESENTATIVE). RECORDS OF EACH INSPECTION AND MAINTENANCE ACTIVITY SHALL INCLUDE:
 - DATE, TIME, AND NAME OF PERSON(S) CONDUCTING INSPECTIONS;
 - FINDINGS OF INSPECTIONS, INCLUDING RECOMMENDATIONS FOR CORRECTIVE ACTIONS;
 - CORRECTIVE ACTIONS TAKEN (INCLUDING DATES, TIMES, AND PARTY COMPLETING MAINTENANCE ACTIVITIES); INCLUDING DOCUMENTATION/PHOTOS OF IMPLEMENTED BMPs INTENDED TO CORRECT A PROBLEM BUT FAILED.
 - DATE AND AMOUNT OF ALL RAINFALL EVENTS GREATER THAN 1/2 INCH (0.5 INCHES) IN 24 HOURS;
 - DOCUMENTATION OF CHANGES MADE TO THE SWPPP
- THE SWPPP SHALL BE AMENDED TO INCLUDE ADDITIONAL OR MODIFIED BMPs, DESIGNED TO CORRECT IDENTIFIED PROBLEMS OR ADDRESS SITUATIONS UNDER PART III.A.5 OF THE NPDES PERMIT.
 - THERE IS A CHANGE IN DESIGN, CONSTRUCTION, OPERATION, MAINTENANCE, WEATHER OR SEASONAL CONDITIONS THAT HAS A SIGNIFICANT EFFECT ON THE DISCHARGE OF POLLUTANTS TO SURFACE WATERS OR UNDERGROUND WATERS;
 - INSPECTIONS OR INVESTIGATIONS BY SITE OPERATORS, LOCAL, STATE OR FEDERAL OFFICIALS INDICATE THE SWPPP IS NOT EFFECTIVE IN ELIMINATING OR SIGNIFICANTLY MINIMIZING THE DISCHARGE OF POLLUTANTS TO SURFACE WATERS OR UNDERGROUND WATERS OR THAT THE DISCHARGES ARE CAUSING WATER QUALITY STANDARD DEGRADATION (E.G. NUISANCE CONDITIONS AS DEFINED IN MINN. R. 7050.0210, SUBP. 2); OR
 - THE SWPPP IS NOT ACHIEVING THE GENERAL OBJECTIVES OF MINIMIZING POLLUTANTS IN STORMWATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY, OR THE SWPPP IS NOT CONSISTENT WITH THE TERMS AND CONDITIONS OF THIS PERMIT.
 - THE MPCA NOTIFIES THE PERMITTEE(S) IN WRITING THAT THE PROJECT'S STORMWATER DISCHARGES MAY CONTRIBUTE TO NON-ATTAINMENT OF ANY APPLICABLE WATER QUALITY STANDARDS, IMPAIRED WATERS STANDARDS, AND/OR TMDL WASTE LOAD ALLOCATIONS. IN RESPONSE, THE PERMITTEE(S) MUST DEVELOP A SUPPLEMENTAL BMP ACTION PLAN OR APPROPRIATE SWPPP
- THE SWPPP (ORIGINAL OR COPIES), ALL CHANGES TO THE SWPPP, PROJECT MANUAL, AND INSPECTIONS/MAINTENANCE RECORDS MUST BE KEPT AT THE SITE DURING CONSTRUCTION BY THE CONTRACTOR/SITE OPERATOR WHO HAS OPERATIONAL CONTROL OF THAT PORTION OF THE SITE. THE SWPPP CAN BE KEPT IN THE FIELD OFFICE OR ON SITE VEHICLE DURING NORMAL WORKING HOURS.
- THE CONTRACTOR/SITE OPERATOR MUST ASSIGN A TRAINED INDIVIDUAL(S) (PURSUANT TO PART III.A.3) TO OVERSEE THE IMPLEMENTATION, MAINTENANCE, AND REPAIR OF BMPs. THIS INDIVIDUAL(S) SHALL ALSO PERFORM INSPECTIONS, REVISE/AMEND THE SWPPP (DOCUMENT IN SWPPP AS NECESSARY), AND BE AVAILABLE FOR AN ONSITE INSPECTION WITHIN 72 HOURS UPON REQUEST BY THE PERMITTED OWNER (OR ITS DESIGNEE), LOCAL GOVERNMENT UNITS, OR MPCA. (PART III.F)

EROSION CONTROL PRACTICES & PROCEDURES

ALL EXPOSED SOIL AREAS SHALL BE STABILIZED WITHIN 7 DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS TEMPORARILY OR PERMANENTLY CEASED. ALL EXPOSED SOILS WITHIN 200 FEET AND DRAINING TO A DNR PUBLIC WATERS MUST BE STABILIZED WITHIN 24 HOURS OF TEMPORARILY OR PERMANENTLY CEASING WORK, DURING THE FISH SPAWNING PERIOD. TEMPORARY STOCKPILES WITHOUT SIGNIFICANT SILT, CLAY OR ORGANIC COMPONENTS (E.G., CLEAN AGGREGATE STOCKPILES, DEMOLITION CONCRETE STOCKPILES, SAND STOCKPILES) AND THE CONSTRUCTED BASE COMPONENTS OF ROADS, PARKING LOTS AND SIMILAR SURFACES ARE EXEMPT FROM THIS REQUIREMENT.

REVISION NO.	DATE	EXPLANATION

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND IN ACCORDANCE WITH THE LAWS OF THE STATE OF MINNESOTA.

DATE: 02/05/2014 15998

ENGINEER

WSB & ASSOCIATES, INC.
 INFRASTRUCTURE ENGINEERING & PLANNING CONSTRUCTION

701 North Avenue South, Suite 300
 Minneapolis, MN 55416
 www.wsb.org.com

763.440.1400 • 800.763.4400

TEMPORARY BEST MANAGEMENT PRACTICES

TEMPORARY STABILIZATION BMPs SHALL ONLY BE IMPLEMENTED WHEN PERMANENT STABILIZATION BMPs CANNOT BE IMPLEMENTED WITHIN THE RAPID STABILIZATION METHOD #3: THIS WORK SHALL CONSIST OF OPERATIONS NECESSARY TO RAPIDLY STABILIZE SMALL CRITICAL AREAS WITHIN 200FT OF SURFACE WATERS, TO PREVENT OFF SITE SEDIMENTATION AND OR TO COMPLY WITH PERMIT REQUIREMENTS.

TEMPORARY/PERMANENT DRAINAGE DITCHES & SWALES: THE NORMAL WETTED PERIMETER OF ANY TEMPORARY OR PERMANENT DRAINAGE DITCH, CHANNEL, OR SWALE THAT DRAINS WATER FROM ANY PORTION OF THE CONSTRUCTION SITE, OR DIVERTS WATER AROUND THE SITE, MUST BE STABILIZED WITHIN THE LAST 200 LINEAL FEET FROM THE PROPERTY EDGE, OR FROM THE POINT OF DISCHARGE INTO ANY SURFACE WATER WITHIN 24 HOURS OF CONNECTION. STABILIZATION REMAINING OF THE REMAINING PORTIONS OF THE CHANNEL MUST BE STABILIZED WITHIN 14 DAYS. ALL STORMWATER CONVEYANCE CHANNELS MUST USE EROSION CONTROL AND VELOCITY DISSIPATION DEVICES WITHIN AND ALONG THE LENGTH OF THE CHANNEL AND AT ANY OUTLETS. TEMPORARY OR PERMANENT DITCHES OR SWALES THAT ARE BEING USED AS A TEMPORARY SEDIMENT CONTAINMENT SYSTEM (WITH PROPERLY DESIGNED ROCK DITCH CHECKS, BIO ROLLS, SILT DIKES ETC.) DO NOT NEED TO BE STABILIZED. THESE AREAS MUST BE STABILIZED WITHIN 24 HOURS AFTER NO LONGER BEING USED AS A SEDIMENT CONTAINMENT SYSTEM. MULCH, HYDROMULCH, TACKIFIER, OR POLYACRYLAMIDE BELOW THE WETTED PERIMETER OF A DITCH, SWALE, OR OTHER SURFACE WATER CONVEYANCE IS NOT ACCEPTABLE STABILIZATION. (WOOD FIBER, NATURAL NET ONLY) IS AN ACCEPTABLE BMP FOR THESE AREAS.

DUST CONTROL: DUST FROM THE SITE WILL BE CONTROLLED BY USING A MOBILE PRESSURE-TYPE DISTRIBUTOR TRUCK TO APPLY POTABLE WATER TO DISTURBED AREAS. THE MOBILE UNIT WILL APPLY WATER AT A RATE NECESSARY TO PREVENT RUNOFF AND PONDING.

TEMPORARY WINTER COVER: AREAS OF EXPOSED SOILS THAT ARE NOT COMPLETED BEFORE THE WINTER WILL BE STABILIZED WITH TYPE #3 (CERTIFIED AS WEED FREE) ADJACENT TO WETLAND OR STORMWATER PONDS. ALL OTHER DISTURBED AREAS SHALL BE STABILIZED WITH TYPE #1 MULCH, UNLESS ALTERNATIVE MORE PROTECTIVE BMPs ARE SPECIFIC WITHIN THE SWPPP. THE PROJECT AREA WILL POTENTIALLY BE STILL ACTIVE OVER THE 2014-2015 WINTER SEASON. ALL EXPOSED SOILS SHALL BE STABILIZED BEFORE CONSTRUCTION IS COMPLETED FOR THE 2015 SEASON.

PERMANENT BEST MANAGEMENT PRACTICES

HYDRO-MULCH TYPE #5: HYDRAULIC SOIL STABILIZER IN COMBINATION WITH A TACKIFIER WILL BE INSTALLED PER MANUFACTURERS SPECIFICATIONS TO EXPOSED SOILS AREAS TO PROVIDE PERMANENT COVER FOR VEGETATION ESTABLISHMENT.

EROSION CONTROL BLANKETS/MATS: CONTRACTOR SHALL VERIFY DURING REGULAR INSPECTIONS THAT NO GULLIES, RILLS, OR SCOUR HOLES HAVE FORMED UNDER EROSION CONTROL BLANKETS AND MATS. ALL REPAIRS MUST BE COMPLETED WITHIN 24 HOURS OF DISCOVERY, OR AS SOON AS FIELD CONDITIONS ALLOW ACCESS

STORM SEWER OUTLETS: PIPE OUTLETS MUST HAVE TEMPORARY OR PERMANENT ENERGY DISSIPATION WITHIN 24 HOURS AFTER HYDRAULIC CONNECTION TO A RECEIVING SURFACE WATER.

SEDIMENT CONTROL PRACTICES & PROCEDURES

THE CONTRACTOR/SITE OPERATOR ARE RESPONSIBLE FOR THE INSTALLATION, OPERATION, AND CONTINUED MAINTENANCE OF ALL TEMPORARY AND PERMANENT WATER QUALITY MANAGEMENT BMPs, AS WELL AS ALL EROSION PREVENTION AND SEDIMENT CONTROL BMPs, FOR THE DURATION OF THE CONSTRUCTION WORK AT THE SITE, UNTIL FINAL STABILIZATION IS ACHIEVED. ALL BMPs MUST BE ADEQUATELY LOCATED, DESIGNED, INSTALLED, AND MAINTAINED TO PREVENT EROSION FROM A MINIMUM 0.5 INCH TOTAL RAINFALL EVENT WITHIN 24 HOURS.

ALL NONFUNCTIONAL BMPs MUST BE REPAIRED, REPLACED, OR SUPPLEMENTED WITH FUNCTIONAL BMPs BY THE END OF THE NEXT BUSINESS DAY AFTER DISCOVERY, OR AS SOON AS FIELD CONDITIONS ALLOW ACCESS UNLESS ANOTHER TIME FRAME IS SPECIFIED IN THE SWPPP. ALL ERODED MATERIAL THAT LEAVES THE SITE SHALL BE COLLECTED BY THE CONTRACTOR AND RETURNED TO THE SITE AT THE CONTRACTOR'S EXPENSE AND INCIDENTAL TO THE PROJECT COST.

DOWN GRADIENT SYSTEMS: IF THE DOWN GRADIENT TREATMENT SYSTEM IS OVERLOADED, ADDITIONAL UP GRADIENT SEDIMENT CONTROL PRACTICES OR REDUNDANT BMPs MUST BE INSTALLED TO ELIMINATE THE OVERLOADING, AND THE SWPPP MUST BE AMENDED TO IDENTIFY THESE ADDITIONAL PRACTICES.

PERIMETER CONTROL BMPs (SILT FENCES, CHIP SACKS, BIOROLLS, ETC.): PERIMETER CONTROL BMPs SHALL BE PLACED, AS CLOSE AS POSSIBLE TO FOLLOW A SINGLE CONTOUR ELEVATION. ALL SILT FENCES MUST BE REPAIRED, REPLACED, OR SUPPLEMENTED WHEN THEY BECOME NONFUNCTIONAL OR THE SEDIMENT REACHES 1/2 OF THE HEIGHT OF THE FENCE. ALL REPAIRS MUST BE COMPLETED BY THE END OF THE NEXT BUSINESS DAY AFTER DISCOVERY, OR AS SOON AS FIELD CONDITIONS ALLOW ACCESS

TEMPORARY AND PERMANENT SEDIMENTATION BASINS: WHERE TEN (10) OR MORE ACRES OF DISTURBED SOIL DRAIN TO A COMMON LOCATION, A TEMPORARY (OR PERMANENT) SEDIMENT BASIN MUST BE PROVIDED PRIOR TO RUNOFF LEAVING THE CONSTRUCTION SITE OR ENTERING SURFACE WATERS. ALL TEMPORARY BASINS SHALL BE CONSTRUCTED AND OPERATIONAL PRIOR TO GRADING TEN (10) OR MORE ACRES PER THE PLANS AND SPECIFICATIONS, OR TO THE MINIMUM STANDARDS SPECIFIED IN PART III.C OF THE NPDES CONSTRUCTION PERMIT. BASINS MUST BE DRAINED AND SEDIMENT REMOVED WHEN THE DEPTH OF COLLECTED SEDIMENT IN THE BASIN REACHES 1/2 THE STORAGE VOLUME. DRAINAGE AND REMOVAL MUST BE COMPLETED WITHIN 72 HOURS OF DISCOVERY, OR AS SOON AS FIELD CONDITIONS ALLOW ACCESS (PART IV.E.4.B).

TEMPORARY STOCKPILES: ALL STOCKPILES MUST HAVE SILT FENCE OR EQUIVALENT PERIMETER SEDIMENT CONTROLS IMPLEMENTED AND MAINTAINED AT ALL TIMES. FILES 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 TO PREVENT STORMWATER RUN-ON INTO THE STOCKPILE (PART IV.C.5).

CONSTRUCTION SITE ENTRANCE/VEHICLE TRACKING: CONTRACTOR MUST MINIMIZE SEDIMENT FROM LEAVING THE CONSTRUCTION SITE (OR ONTO STREETS WITHIN THE SITE) BY IMPLEMENTING BMPs SUCH AS ROCK PADS, SLASH MULCH, CONCRETE OR STEEL WASH RACKS, OR EQUIVALENT SYSTEMS. STREET SWEEPING MUST BE USED DAILY DURING CONSTRUCTION OPERATIONS IF SUCH BMPs ARE NOT ADEQUATE TO PREVENT SEDIMENT FROM BEING TRACKED ONTO THE STREET. TRACKED SEDIMENT MUST BE REMOVED FROM ALL PAVED

SURFACES (ON AND OFF-SITE) WITHIN 24 HOURS OF DISCOVERY, OR SOONER AS DIRECTED BY THE PROJECT OWNER TO COMPLY WITH PART IV.C.6 OF THE NPDES CONSTRUCTION PERMIT. MULTIPLE STREET SWEEPINGS AT THE CONTRACTOR'S EXPENSE MAY BE REQUIRED ON ALL ENTRY/EXIT POINTS TO THE SITE AT THE DISCRETION OF THE PROJECT OWNER.

SURFACE WATERS: INCLUDING OFF-SITE AND DOWNSTREAM DRAINAGE DITCHES, CATCH BASINS, AND CONVEYANCE SYSTEMS, MUST BE INSPECTED FOR EVIDENCE OF EROSION AND SEDIMENT DEPOSITION. THE REMOVAL AND STABILIZATION OF EXPOSED SOILS MUST TAKE PLACE WITHIN SEVEN (7) DAYS OF DISCOVERY UNLESS EXCLUDED BY LEGAL, REGULATORY, OR PHYSICAL ACCESS CONSTRAINTS. IF PRECLUDED, REMOVAL AND STABILIZATION MUST TAKE PLACE WITHIN SEVEN (7) CALENDAR DAYS OF OBTAINING ACCESS. THE PERMITTEES ARE RESPONSIBLE FOR CONTACTING ALL LOCAL, REGIONAL, STATE AND FEDERAL AGENCIES AND RECEIVING ANY APPLICABLE PERMITS, PRIOR TO CONDUCTING ANY WORK (PART IV.E.5.C).

INLET PROTECTION: ALL STORM DRAIN INLETS (INCLUDING DOWN GRADIENT, OFF-SITE) MUST BE PROTECTED BY APPROPRIATE BMPs DURING CONSTRUCTION UNTIL ALL SOURCES WITH POTENTIAL FOR DISCHARGING TO THE INLET HAVE BEEN STABILIZED. SILT FENCE IS NOT AN ACCEPTABLE CATCH BASIN INLET PROTECTION BMP. CONTRACTOR SHALL CLEAN, REMOVE AND DISPOSE OF SEDIMENT, AND/OR REPLACE STORM DRAIN INLET PROTECTION ON A ROUTINE BASIS TO ENSURE THE DEVICE IS FULLY FUNCTIONAL PRIOR TO THE NEXT FORECASTED PRECIPITATION EVENT (30% OR GREATER). INLET PROTECTION MAY BE REMOVED FOR A PARTICULAR INLET IF A SPECIFIC SAFETY CONCERN (STREET FLOODING/FREEZING) HAS BEEN IDENTIFIED AND THE PERMITTEE(S) HAVE RECEIVED WRITTEN CORRESPONDENCE FROM THE JURISDICTIONAL AUTHORITY (E.G. CITY/COUNTY/TOWNSHIP/MNDOT ENGINEER) VERIFYING THE NEED FOR REMOVAL. WRITTEN CORRESPONDENCE MUST BE DOCUMENTED IN THE SWPPP AND AVAILABLE WITHIN 72 HOURS UPON REQUEST. PERMISSION TO REMOVE INLET PROTECTION BASED ON A SPECIFIC SAFETY CONCERN MUST STILL BE OBTAINED FROM THE LOCAL JURISDICTIONAL AUTHORITY WITHIN 30 DAYS OF REMOVAL (PART IV.C.4).

CHEMICAL TREATMENTS: CONTRACTOR MUST AMEND THE SWPPP TO INCLUDE THE INTENDED USES AND LOCATIONS OF FLOCCULANTS, POLYMERS, AND OTHER SEDIMENTATION TREATMENT CHEMICALS. CHEMICAL TREATMENTS MAY ONLY BE APPLIED IN AREAS WHERE TREATED STORMWATER IS DIRECTED TO A RECEIVING SEDIMENT CONTROL SYSTEM (NOT DIRECTLY DISCHARGED TO NATURAL WATER BODIES). THIS INCLUDES DOCUMENTING THE EXPECTED SOIL TYPES, MANUFACTURER'S RECOMMENDED DOSING, APPLICATION RATES/QUANTITIES, AND MONITORING RESULTS (TURBIDITY, PH).

DEWATERING, STREAM DIVERSION, AND BASIN DRAINING

DEWATERING, STREAM DIVERSION, OR BASIN DRAINING IS NOT ANTICIPATED DURING CONSTRUCTION OF THIS PROJECT. DITCH REALIGNMENT, CULVERT CONSTRUCTION, AND NEW POND GRADING WILL REQUIRE SITE DEWATERING PLAN. WHEN DEWATERING OR BASIN DRAINING IS REQUIRED, THE CONTRACTOR SHALL SUBMIT A DEWATERING PLAN AND NARRATIVE TO THE PROJECT ENGINEER FOR APPROVAL PRIOR TO UNDERTAKING THESE ACTIVITIES. DEWATERING PLAN MUST INCLUDE BMP'S TO PREVENT SEDIMENT TRANSPORT, EROSION, AND ADVERSE IMPACTS TO DOWNSTREAM RECEIVING WATERS. THE DEWATERING PLAN MUST ALSO INCLUDE ANY SPECIFIC CHEMICAL TREATMENTS (FLOC, POLYMERS, ETC.) THAT WILL BE USED (REFER TO "SEDIMENT CONTROL PRACTICES & PROCEDURES"). IF AN APPROVED TMDL WASTE LOAD ALLOCATION IS ESTABLISHED FOR CONSTRUCTION ACTIVITIES ON A RECEIVING WATERBODY, THE CONTRACTOR MUST IMPLEMENT ALL NECESSARY BMP'S TO MEET THE ASSIGNED WLA. THE DEWATERING PLAN AND DNR APPROPRIATIONS PERMIT WILL BECOME PART OF THE SWPPP. WATER THAT IS TURBID OR HAS SEDIMENT MUST BE DISCHARGED TO A TEMPORARY OR PERMANENT SEDIMENTATION BASIN (AND/OR OTHER APPROPRIATE BMPs) ON THE PROJECT SITE WHENEVER POSSIBLE. DISCHARGE FROM THE TEMPORARY OR PERMANENT SEDIMENTATION BASIN MUST BE VISUALLY CHECKED TO ENSURE ADEQUATE TREATMENT IS OBTAINED IN THE BASIN AND THAT NUISANCE CONDITIONS (SEE MINN. R. 7050.0210, SUBP. 2), IMPACTS TO WETLANDS, AND EROSION IN RECEIVING CHANNELS OR ON DOWNSLOPE PROPERTIES WILL NOT RESULT FROM THE DISCHARGE. THE DISCHARGE MUST BE DISPERSED OVER NATURAL ROCK RIPRAP, SAND BAGS, PLASTIC SHEETING, OR OTHER ACCEPTED ENERGY DISSIPATION MEASURES. ADEQUATE SEDIMENTATION CONTROL MEASURES ARE REQUIRED FOR DISCHARGE WATER THAT CONTAINS SUSPENDED SOLIDS (PART IV.D.1).

FINAL STABILIZATION

FINAL STABILIZATION IS ACHIEVED WHEN THE FOLLOWING THREE PARAMETERS ARE COMPLETED, PRIOR TO SUBMISSION OF THE NOT TO MECA. SEE PERMANENT EROSION CONTROL PRACTICES FOR SPECIFIC METHODS AND APPLICATIONS.

1. **70% VEGETATIVE COVER:** ALL SOIL DISTURBING ACTIVITIES AT THE SITE HAVE BEEN COMPLETED AND ALL EXPOSED SOILS ARE STABILIZED BY A UNIFORM, LIVE PERENNIAL VEGETATIVE COVER WITH A DENSITY OF 70% OVER THE ENTIRE PVIOUS SURFACE AREA, OR OTHER EQUIVALENT MEANS NECESSARY TO PREVENT SOIL FAILURE UNDER EROSTIVE CONDITIONS.
2. **FINAL CLEAN OUT OF PERMANENT STORMWATER MANAGEMENT SYSTEMS & CONVEYANCE SYSTEMS:** ALL SEDIMENT MUST BE REMOVED FROM PERMANENT STORMWATER MANAGEMENT SYSTEMS, CONVEYANCE SYSTEMS, AND DITCHES MUST BE STABILIZED WITH PERMANENT COVER.
3. **REMOVAL OF ALL TEMPORARY BMPs:** PRIOR TO SUBMISSION OF THE NOT, ALL TEMPORARY SYNTHETIC AND STRUCTURAL EROSION PREVENTION AND SEDIMENT CONTROL BMPs (SUCH AS SILT FENCE) MUST BE REMOVED ON THE PORTIONS OF THE SITE FOR WHICH THE PERMITTEE IS RESPONSIBLE. BMPs DESIGNED TO DECOMPOSE ON SITE (SUCH AS SOME COMPOST LOGS) MAY BE LEFT IN PLACE.

REVISION NO.	DATE	DESCRIPTION

SCALE	AS NOTED
PLAN TITLE	USDA 87
ESF	ESF
CHECKED BY	PH
PROJECT NO.	1165-80
DATE	
RECORD COPY BY	

WEEDY GARDEN, THE PLAN SPECIFICATION, AS 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

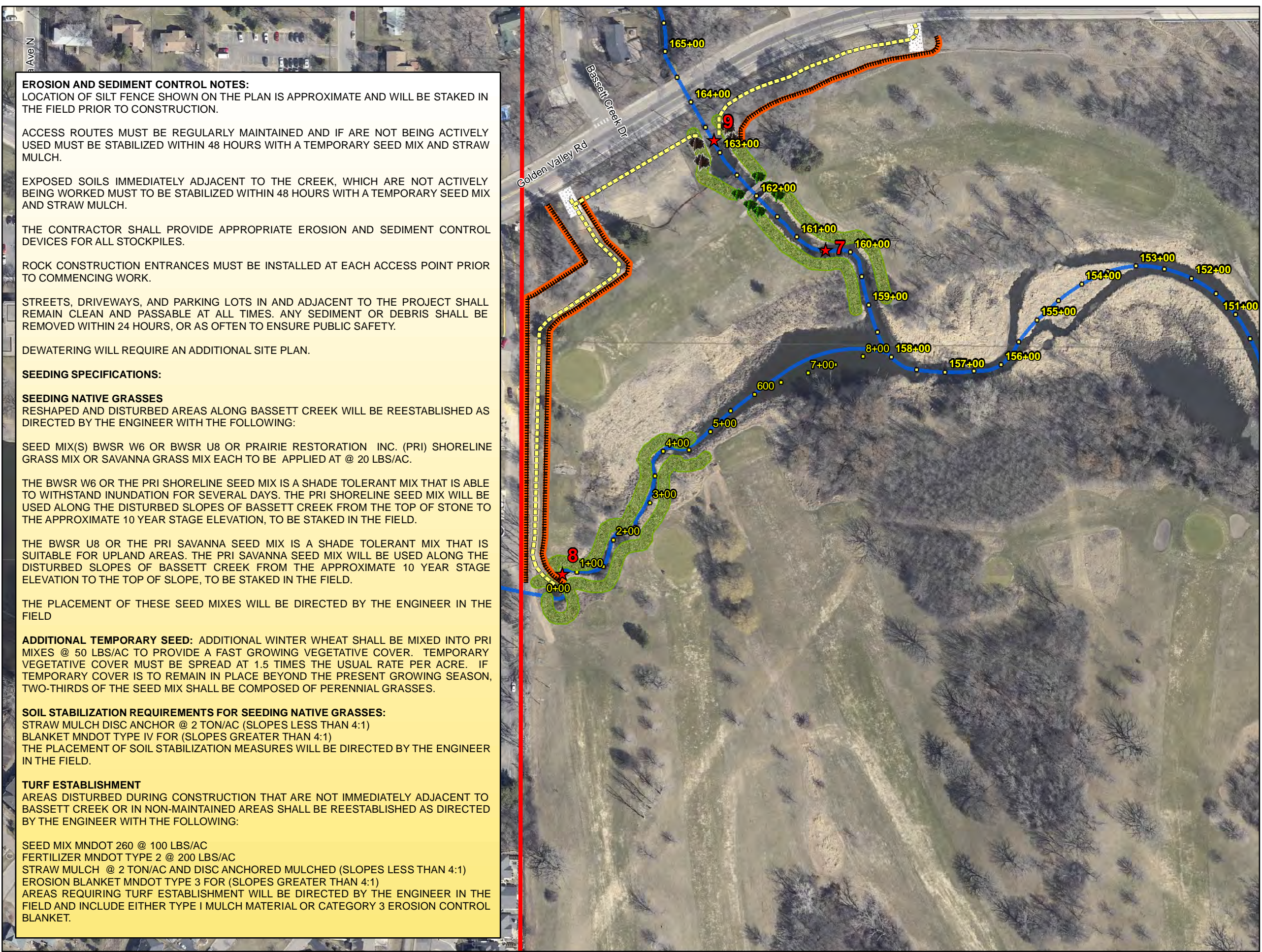
DATE: 02/05/2014 LC. NO. 15988

ENGINEER

WSB
 & Associates, Inc.
 INFRASTRUCTURE ENGINEERING & PLANNING & CONSTRUCTION

701 Xenth Avenue South, Suite 300
 Minneapolis, MN 55416
 www.wsbeng.com

763-440-7700 Fax: 763-440-7701



EROSION AND SEDIMENT CONTROL NOTES:
 LOCATION OF SILT FENCE SHOWN ON THE PLAN IS APPROXIMATE AND WILL BE STAKED IN THE FIELD PRIOR TO CONSTRUCTION.

ACCESS ROUTES MUST BE REGULARLY MAINTAINED AND IF ARE NOT BEING ACTIVELY USED MUST BE STABILIZED WITHIN 48 HOURS WITH A TEMPORARY SEED MIX AND STRAW MULCH.

EXPOSED SOILS IMMEDIATELY ADJACENT TO THE CREEK, WHICH ARE NOT ACTIVELY BEING WORKED MUST TO BE STABILIZED WITHIN 48 HOURS WITH A TEMPORARY SEED MIX AND STRAW MULCH.

THE CONTRACTOR SHALL PROVIDE APPROPRIATE EROSION AND SEDIMENT CONTROL DEVICES FOR ALL STOCKPILES.

ROCK CONSTRUCTION ENTRANCES MUST BE INSTALLED AT EACH ACCESS POINT PRIOR TO COMMENCING WORK.

STREETS, DRIVEWAYS, AND PARKING LOTS IN AND ADJACENT TO THE PROJECT SHALL REMAIN CLEAN AND PASSABLE AT ALL TIMES. ANY SEDIMENT OR DEBRIS SHALL BE REMOVED WITHIN 24 HOURS, OR AS OFTEN TO ENSURE PUBLIC SAFETY.

DEWATERING WILL REQUIRE AN ADDITIONAL SITE PLAN.

SEEDING SPECIFICATIONS:

SEEDING NATIVE GRASSES

RESHAPED AND DISTURBED AREAS ALONG BASSETT CREEK WILL BE REESTABLISHED AS DIRECTED BY THE ENGINEER WITH THE FOLLOWING:

SEED MIX(S) BWSR W6 OR BWSR U8 OR PRAIRIE RESTORATION INC. (PRI) SHORELINE GRASS MIX OR SAVANNA GRASS MIX EACH TO BE APPLIED AT @ 20 LBS/AC.

THE BWSR W6 OR THE PRI SHORELINE SEED MIX IS A SHADE TOLERANT MIX THAT IS ABLE TO WITHSTAND INUNDATION FOR SEVERAL DAYS. THE PRI SHORELINE SEED MIX WILL BE USED ALONG THE DISTURBED SLOPES OF BASSETT CREEK FROM THE TOP OF STONE TO THE APPROXIMATE 10 YEAR STAGE ELEVATION, TO BE STAKED IN THE FIELD.

THE BWSR U8 OR THE PRI SAVANNA SEED MIX IS A SHADE TOLERANT MIX THAT IS SUITABLE FOR UPLAND AREAS. THE PRI SAVANNA SEED MIX WILL BE USED ALONG THE DISTURBED SLOPES OF BASSETT CREEK FROM THE APPROXIMATE 10 YEAR STAGE ELEVATION TO THE TOP OF SLOPE, TO BE STAKED IN THE FIELD.

THE PLACEMENT OF THESE SEED MIXES WILL BE DIRECTED BY THE ENGINEER IN THE FIELD

ADDITIONAL TEMPORARY SEED: ADDITIONAL WINTER WHEAT SHALL BE MIXED INTO PRI MIXES @ 50 LBS/AC TO PROVIDE A FAST GROWING VEGETATIVE COVER. TEMPORARY VEGETATIVE COVER MUST BE SPREAD AT 1.5 TIMES THE USUAL RATE PER ACRE. IF TEMPORARY COVER IS TO REMAIN IN PLACE BEYOND THE PRESENT GROWING SEASON, TWO-THIRDS OF THE SEED MIX SHALL BE COMPOSED OF PERENNIAL GRASSES.

SOIL STABILIZATION REQUIREMENTS FOR SEEDING NATIVE GRASSES:

STRAW MULCH DISC ANCHOR @ 2 TON/AC (SLOPES LESS THAN 4:1)
 BLANKET MNDOT TYPE IV FOR (SLOPES GREATER THAN 4:1)
 THE PLACEMENT OF SOIL STABILIZATION MEASURES WILL BE DIRECTED BY THE ENGINEER IN THE FIELD.

TURF ESTABLISHMENT

AREAS DISTURBED DURING CONSTRUCTION THAT ARE NOT IMMEDIATELY ADJACENT TO BASSETT CREEK OR IN NON-MAINTAINED AREAS SHALL BE REESTABLISHED AS DIRECTED BY THE ENGINEER WITH THE FOLLOWING:

SEED MIX MNDOT 260 @ 100 LBS/AC
 FERTILIZER MNDOT TYPE 2 @ 200 LBS/AC
 STRAW MULCH @ 2 TON/AC AND DISC ANCHORED MULCHED (SLOPES LESS THAN 4:1)
 EROSION BLANKET MNDOT TYPE 3 FOR (SLOPES GREATER THAN 4:1)
 AREAS REQUIRING TURF ESTABLISHMENT WILL BE DIRECTED BY THE ENGINEER IN THE FIELD AND INCLUDE EITHER TYPE I MULCH MATERIAL OR CATEGORY 3 EROSION CONTROL BLANKET.

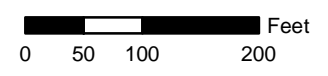


Main Stem of Bassett Creek Restoration Project

Construction Notes Area A Station 164+00-151+00

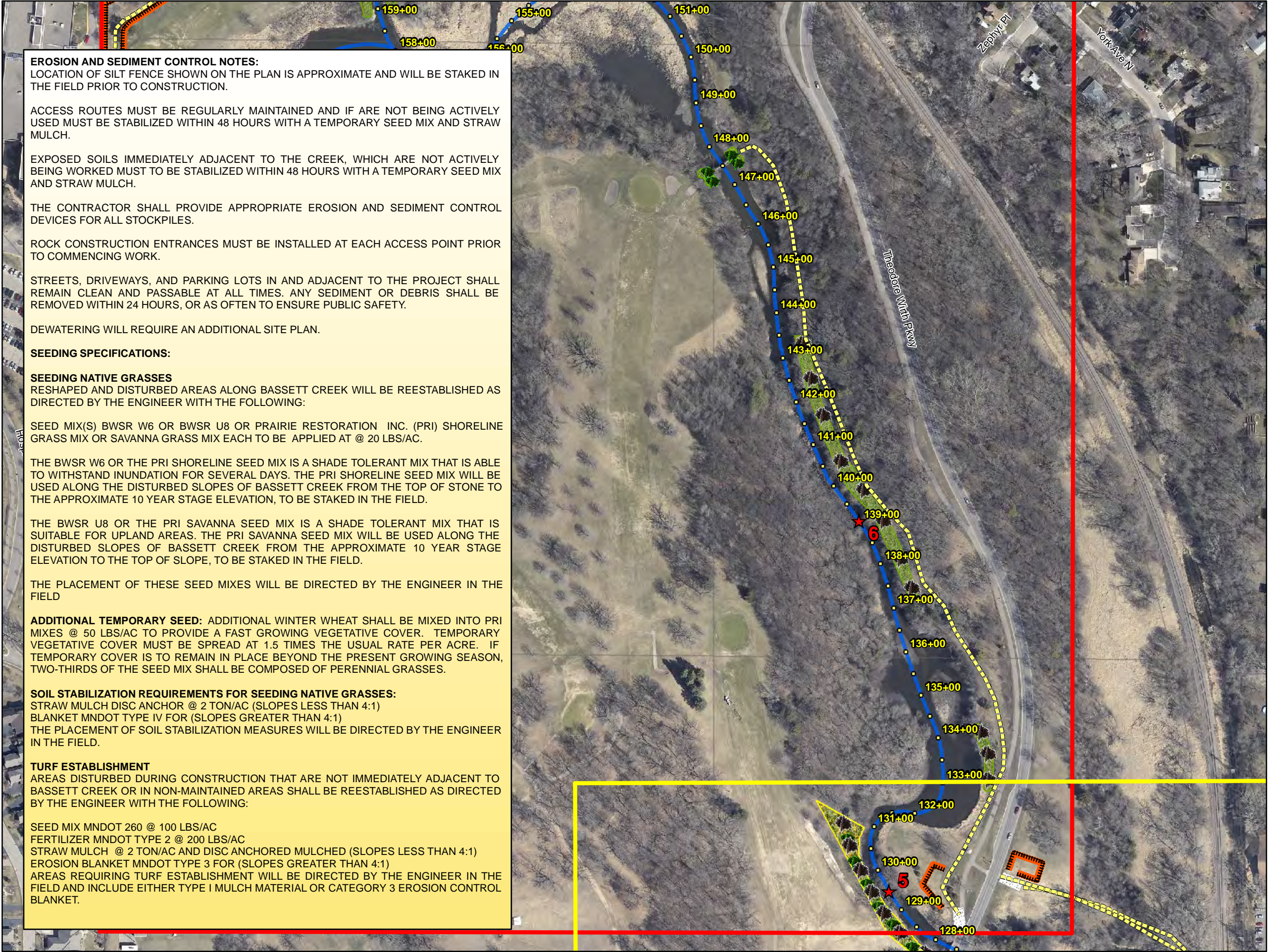
Legend

- Maintenance Area A
- BCWMC Maintenance Locations
- Access Route
- Silt Fence
- Silt Curtain
- Plantings Tree
- Plantings Shrubs
- Wetland Seeding
- Wildflower Planting
- Upland Seeding
- Construction Entrance
- Property Boundary



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

ENGINEER
 DATE: 02/05/2014 LIC. NO: 15998



EROSION AND SEDIMENT CONTROL NOTES:

LOCATION OF SILT FENCE SHOWN ON THE PLAN IS APPROXIMATE AND WILL BE STAKED IN THE FIELD PRIOR TO CONSTRUCTION.

ACCESS ROUTES MUST BE REGULARLY MAINTAINED AND IF ARE NOT BEING ACTIVELY USED MUST BE STABILIZED WITHIN 48 HOURS WITH A TEMPORARY SEED MIX AND STRAW MULCH.

EXPOSED SOILS IMMEDIATELY ADJACENT TO THE CREEK, WHICH ARE NOT ACTIVELY BEING WORKED MUST TO BE STABILIZED WITHIN 48 HOURS WITH A TEMPORARY SEED MIX AND STRAW MULCH.

THE CONTRACTOR SHALL PROVIDE APPROPRIATE EROSION AND SEDIMENT CONTROL DEVICES FOR ALL STOCKPILES.

ROCK CONSTRUCTION ENTRANCES MUST BE INSTALLED AT EACH ACCESS POINT PRIOR TO COMMENCING WORK.

STREETS, DRIVEWAYS, AND PARKING LOTS IN AND ADJACENT TO THE PROJECT SHALL REMAIN CLEAN AND PASSABLE AT ALL TIMES. ANY SEDIMENT OR DEBRIS SHALL BE REMOVED WITHIN 24 HOURS, OR AS OFTEN TO ENSURE PUBLIC SAFETY.

DEWATERING WILL REQUIRE AN ADDITIONAL SITE PLAN.

SEEDING SPECIFICATIONS:

SEEDING NATIVE GRASSES

RESHAPED AND DISTURBED AREAS ALONG BASSETT CREEK WILL BE REESTABLISHED AS DIRECTED BY THE ENGINEER WITH THE FOLLOWING:

SEED MIX(S) BWSR W6 OR BWSR U8 OR PRAIRIE RESTORATION INC. (PRI) SHORELINE GRASS MIX OR SAVANNA GRASS MIX EACH TO BE APPLIED AT @ 20 LBS/AC.

THE BWSR W6 OR THE PRI SHORELINE SEED MIX IS A SHADE TOLERANT MIX THAT IS ABLE TO WITHSTAND INUNDATION FOR SEVERAL DAYS. THE PRI SHORELINE SEED MIX WILL BE USED ALONG THE DISTURBED SLOPES OF BASSETT CREEK FROM THE TOP OF STONE TO THE APPROXIMATE 10 YEAR STAGE ELEVATION, TO BE STAKED IN THE FIELD.

THE BWSR U8 OR THE PRI SAVANNA SEED MIX IS A SHADE TOLERANT MIX THAT IS SUITABLE FOR UPLAND AREAS. THE PRI SAVANNA SEED MIX WILL BE USED ALONG THE DISTURBED SLOPES OF BASSETT CREEK FROM THE APPROXIMATE 10 YEAR STAGE ELEVATION TO THE TOP OF SLOPE, TO BE STAKED IN THE FIELD.

THE PLACEMENT OF THESE SEED MIXES WILL BE DIRECTED BY THE ENGINEER IN THE FIELD

ADDITIONAL TEMPORARY SEED: ADDITIONAL WINTER WHEAT SHALL BE MIXED INTO PRI MIXES @ 50 LBS/AC TO PROVIDE A FAST GROWING VEGETATIVE COVER. TEMPORARY VEGETATIVE COVER MUST BE SPREAD AT 1.5 TIMES THE USUAL RATE PER ACRE. IF TEMPORARY COVER IS TO REMAIN IN PLACE BEYOND THE PRESENT GROWING SEASON, TWO-THIRDS OF THE SEED MIX SHALL BE COMPOSED OF PERENNIAL GRASSES.

SOIL STABILIZATION REQUIREMENTS FOR SEEDING NATIVE GRASSES:

STRAW MULCH DISC ANCHOR @ 2 TON/AC (SLOPES LESS THAN 4:1)
 BLANKET MNDOT TYPE IV FOR (SLOPES GREATER THAN 4:1)
 THE PLACEMENT OF SOIL STABILIZATION MEASURES WILL BE DIRECTED BY THE ENGINEER IN THE FIELD.

TURF ESTABLISHMENT

AREAS DISTURBED DURING CONSTRUCTION THAT ARE NOT IMMEDIATELY ADJACENT TO BASSETT CREEK OR IN NON-MAINTAINED AREAS SHALL BE REESTABLISHED AS DIRECTED BY THE ENGINEER WITH THE FOLLOWING:

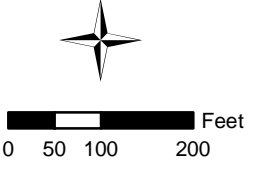
SEED MIX MNDOT 260 @ 100 LBS/AC
 FERTILIZER MNDOT TYPE 2 @ 200 LBS/AC
 STRAW MULCH @ 2 TON/AC AND DISC ANCHORED MULCHED (SLOPES LESS THAN 4:1)
 EROSION BLANKET MNDOT TYPE 3 FOR (SLOPES GREATER THAN 4:1)
 AREAS REQUIRING TURF ESTABLISHMENT WILL BE DIRECTED BY THE ENGINEER IN THE FIELD AND INCLUDE EITHER TYPE I MULCH MATERIAL OR CATEGORY 3 EROSION CONTROL BLANKET.



Main Stem of Bassett Creek Restoration Project

Construction Notes Area A Station 151+00-128+00

- Legend**
- Maintenance Area A
 - Maintenance Area B
 - ★ BCWMC Maintenance Locations
 - Access Route
 - Silt Fence
 - Silt Curtain
 - Plantings Tree
 - Plantings Shrubs
 - Wetland Seeding
 - Wildflower Planting
 - Upland Seeding
 - Construction Entrance
 - City Boundary
 - Bassett Creek
 - Property Boundary



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

ENGINEER
 DATE: 02/05/2014 LIC. NO: 15998

EROSION AND SEDIMENT CONTROL NOTES:

LOCATION OF SILT FENCE SHOWN ON THE PLAN IS APPROXIMATE AND WILL BE STAKED IN THE FIELD PRIOR TO CONSTRUCTION.

ACCESS ROUTES MUST BE REGULARLY MAINTAINED AND IF ARE NOT BEING ACTIVELY USED MUST BE STABILIZED WITHIN 48 HOURS WITH A TEMPORARY SEED MIX AND STRAW MULCH.

EXPOSED SOILS IMMEDIATELY ADJACENT TO THE CREEK, WHICH ARE NOT ACTIVELY BEING WORKED MUST TO BE STABILIZED WITHIN 48 HOURS WITH A TEMPORARY SEED MIX AND STRAW MULCH.

THE CONTRACTOR SHALL PROVIDE APPROPRIATE EROSION AND SEDIMENT CONTROL DEVICES FOR ALL STOCKPILES.

ROCK CONSTRUCTION ENTRANCES MUST BE INSTALLED AT EACH ACCESS POINT PRIOR TO COMMENCING WORK.

STREETS, DRIVEWAYS, AND PARKING LOTS IN AND ADJACENT TO THE PROJECT SHALL REMAIN CLEAN AND PASSABLE AT ALL TIMES. ANY SEDIMENT OR DEBRIS SHALL BE REMOVED WITHIN 24 HOURS, OR AS OFTEN TO ENSURE PUBLIC SAFETY.

DEWATERING WILL REQUIRE AN ADDITIONAL SITE PLAN.

SEEDING SPECIFICATIONS:

SEEDING NATIVE GRASSES

RESHAPED AND DISTURBED AREAS ALONG BASSETT CREEK WILL BE REESTABLISHED AS DIRECTED BY THE ENGINEER WITH THE FOLLOWING:

SEED MIX(S) BWSR W6 OR BWSR U8 OR PRAIRIE RESTORATION INC. (PRI) SHORELINE GRASS MIX OR SAVANNA GRASS MIX EACH TO BE APPLIED AT @ 20 LBS/AC.

THE BWSR W6 OR THE PRI SHORELINE SEED MIX IS A SHADE TOLERANT MIX THAT IS ABLE TO WITHSTAND INUNDATION FOR SEVERAL DAYS. THE PRI SHORELINE SEED MIX WILL BE USED ALONG THE DISTURBED SLOPES OF BASSETT CREEK FROM THE TOP OF STONE TO THE APPROXIMATE 10 YEAR STAGE ELEVATION, TO BE STAKED IN THE FIELD.

THE BWSR U8 OR THE PRI SAVANNA SEED MIX IS A SHADE TOLERANT MIX THAT IS SUITABLE FOR UPLAND AREAS. THE PRI SAVANNA SEED MIX WILL BE USED ALONG THE DISTURBED SLOPES OF BASSETT CREEK FROM THE APPROXIMATE 10 YEAR STAGE ELEVATION TO THE TOP OF SLOPE, TO BE STAKED IN THE FIELD.

THE PLACEMENT OF THESE SEED MIXES WILL BE DIRECTED BY THE ENGINEER IN THE FIELD

ADDITIONAL TEMPORARY SEED: ADDITIONAL WINTER WHEAT SHALL BE MIXED INTO PRI MIXES @ 50 LBS/AC TO PROVIDE A FAST GROWING VEGETATIVE COVER. TEMPORARY VEGETATIVE COVER MUST BE SPREAD AT 1.5 TIMES THE USUAL RATE PER ACRE. IF TEMPORARY COVER IS TO REMAIN IN PLACE BEYOND THE PRESENT GROWING SEASON, TWO-THIRDS OF THE SEED MIX SHALL BE COMPOSED OF PERENNIAL GRASSES.

SOIL STABILIZATION REQUIREMENTS FOR SEEDING NATIVE GRASSES:

STRAW MULCH DISC ANCHOR @ 2 TON/AC (SLOPES LESS THAN 4:1)

BLANKET MNDOT TYPE IV FOR (SLOPES GREATER THAN 4:1)

THE PLACEMENT OF SOIL STABILIZATION MEASURES WILL BE DIRECTED BY THE ENGINEER IN THE FIELD.

TURF ESTABLISHMENT

AREAS DISTURBED DURING CONSTRUCTION THAT ARE NOT IMMEDIATELY ADJACENT TO BASSETT CREEK OR IN NON-MAINTAINED AREAS SHALL BE REESTABLISHED AS DIRECTED BY THE ENGINEER WITH THE FOLLOWING:

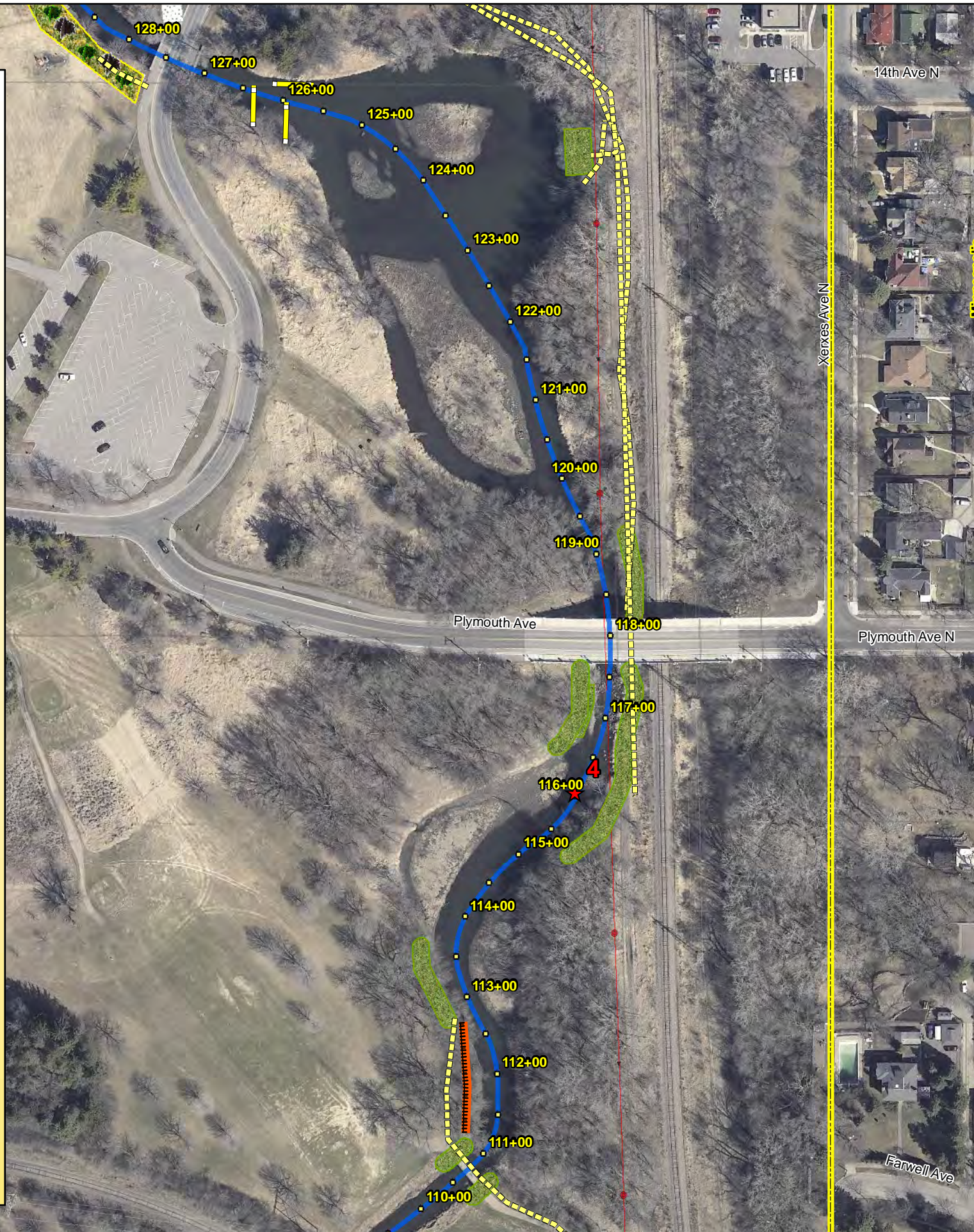
SEED MIX MNDOT 260 @ 100 LBS/AC

FERTILIZER MNDOT TYPE 2 @ 200 LBS/AC

STRAW MULCH @ 2 TON/AC AND DISC ANCHORED MULCHED (SLOPES LESS THAN 4:1)

EROSION BLANKET MNDOT TYPE 3 FOR (SLOPES GREATER THAN 4:1)

AREAS REQUIRING TURF ESTABLISHMENT WILL BE DIRECTED BY THE ENGINEER IN THE FIELD AND INCLUDE EITHER TYPE I MULCH MATERIAL OR CATEGORY 3 EROSION CONTROL BLANKET.



Main Stem of Bassett Creek Restoration Project SWPPP Area B Station 128+00-110+00

Legend

- ★ BCWMC Maintenance Locations
- B
- Access Route
- Silt Fence
- Silt Curtain
- Plantings Tree
- Plantings Shrubs
- Wetland Seeding
- Wildflower Planting
- Upland Seeding
- Construction Entrance
- City Boundary
- Bassett Creek
- Storm Sewer Manholes
- Storm Sewer
- Watermain
- Sanitary Sewer
- Sanitary Sewer Manhole
- Property Boundary



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

ENGINEER
DATE: 02/05/2014 LIC. NO.: 15998

EROSION AND SEDIMENT CONTROL NOTES:

LOCATION OF SILT FENCE SHOWN ON THE PLAN IS APPROXIMATE AND WILL BE STAKED IN THE FIELD PRIOR TO CONSTRUCTION.

ACCESS ROUTES MUST BE REGULARLY MAINTAINED AND IF ARE NOT BEING ACTIVELY USED MUST BE STABILIZED WITHIN 48 HOURS WITH A TEMPORARY SEED MIX AND STRAW MULCH.

EXPOSED SOILS IMMEDIATELY ADJACENT TO THE CREEK, WHICH ARE NOT ACTIVELY BEING WORKED MUST TO BE STABILIZED WITHIN 48 HOURS WITH A TEMPORARY SEED MIX AND STRAW MULCH.

THE CONTRACTOR SHALL PROVIDE APPROPRIATE EROSION AND SEDIMENT CONTROL DEVICES FOR ALL STOCKPILES.

ROCK CONSTRUCTION ENTRANCES MUST BE INSTALLED AT EACH ACCESS POINT PRIOR TO COMMENCING WORK.

STREETS, DRIVEWAYS, AND PARKING LOTS IN AND ADJACENT TO THE PROJECT SHALL REMAIN CLEAN AND PASSABLE AT ALL TIMES. ANY SEDIMENT OR DEBRIS SHALL BE REMOVED WITHIN 24 HOURS, OR AS OFTEN TO ENSURE PUBLIC SAFETY.

DEWATERING WILL REQUIRE AN ADDITIONAL SITE PLAN.

SEEDING SPECIFICATIONS:

SEEDING NATIVE GRASSES

RESHAPED AND DISTURBED AREAS ALONG BASSETT CREEK WILL BE REESTABLISHED AS DIRECTED BY THE ENGINEER WITH THE FOLLOWING:

SEED MIX(S) BWSR W6 OR BWSR U8 OR PRAIRIE RESTORATION INC. (PRI) SHORELINE GRASS MIX OR SAVANNA GRASS MIX EACH TO BE APPLIED AT @ 20 LBS/AC.

THE BWSR W6 OR THE PRI SHORELINE SEED MIX IS A SHADE TOLERANT MIX THAT IS ABLE TO WITHSTAND INUNDATION FOR SEVERAL DAYS. THE PRI SHORELINE SEED MIX WILL BE USED ALONG THE DISTURBED SLOPES OF BASSETT CREEK FROM THE TOP OF STONE TO THE APPROXIMATE 10 YEAR STAGE ELEVATION, TO BE STAKED IN THE FIELD.

THE BWSR U8 OR THE PRI SAVANNA SEED MIX IS A SHADE TOLERANT MIX THAT IS SUITABLE FOR UPLAND AREAS. THE PRI SAVANNA SEED MIX WILL BE USED ALONG THE DISTURBED SLOPES OF BASSETT CREEK FROM THE APPROXIMATE 10 YEAR STAGE ELEVATION TO THE TOP OF SLOPE, TO BE STAKED IN THE FIELD.

THE PLACEMENT OF THESE SEED MIXES WILL BE DIRECTED BY THE ENGINEER IN THE FIELD

ADDITIONAL TEMPORARY SEED: ADDITIONAL WINTER WHEAT SHALL BE MIXED INTO PRI MIXES @ 50 LBS/AC TO PROVIDE A FAST GROWING VEGETATIVE COVER. TEMPORARY VEGETATIVE COVER MUST BE SPREAD AT 1.5 TIMES THE USUAL RATE PER ACRE. IF TEMPORARY COVER IS TO REMAIN IN PLACE BEYOND THE PRESENT GROWING SEASON, TWO-THIRDS OF THE SEED MIX SHALL BE COMPOSED OF PERENNIAL GRASSES.

SOIL STABILIZATION REQUIREMENTS FOR SEEDING NATIVE GRASSES:

STRAW MULCH DISC ANCHOR @ 2 TON/AC (SLOPES LESS THAN 4:1)

BLANKET MNDOT TYPE IV FOR (SLOPES GREATER THAN 4:1)

THE PLACEMENT OF SOIL STABILIZATION MEASURES WILL BE DIRECTED BY THE ENGINEER IN THE FIELD.

TURF ESTABLISHMENT

AREAS DISTURBED DURING CONSTRUCTION THAT ARE NOT IMMEDIATELY ADJACENT TO BASSETT CREEK OR IN NON-MAINTAINED AREAS SHALL BE REESTABLISHED AS DIRECTED BY THE ENGINEER WITH THE FOLLOWING:

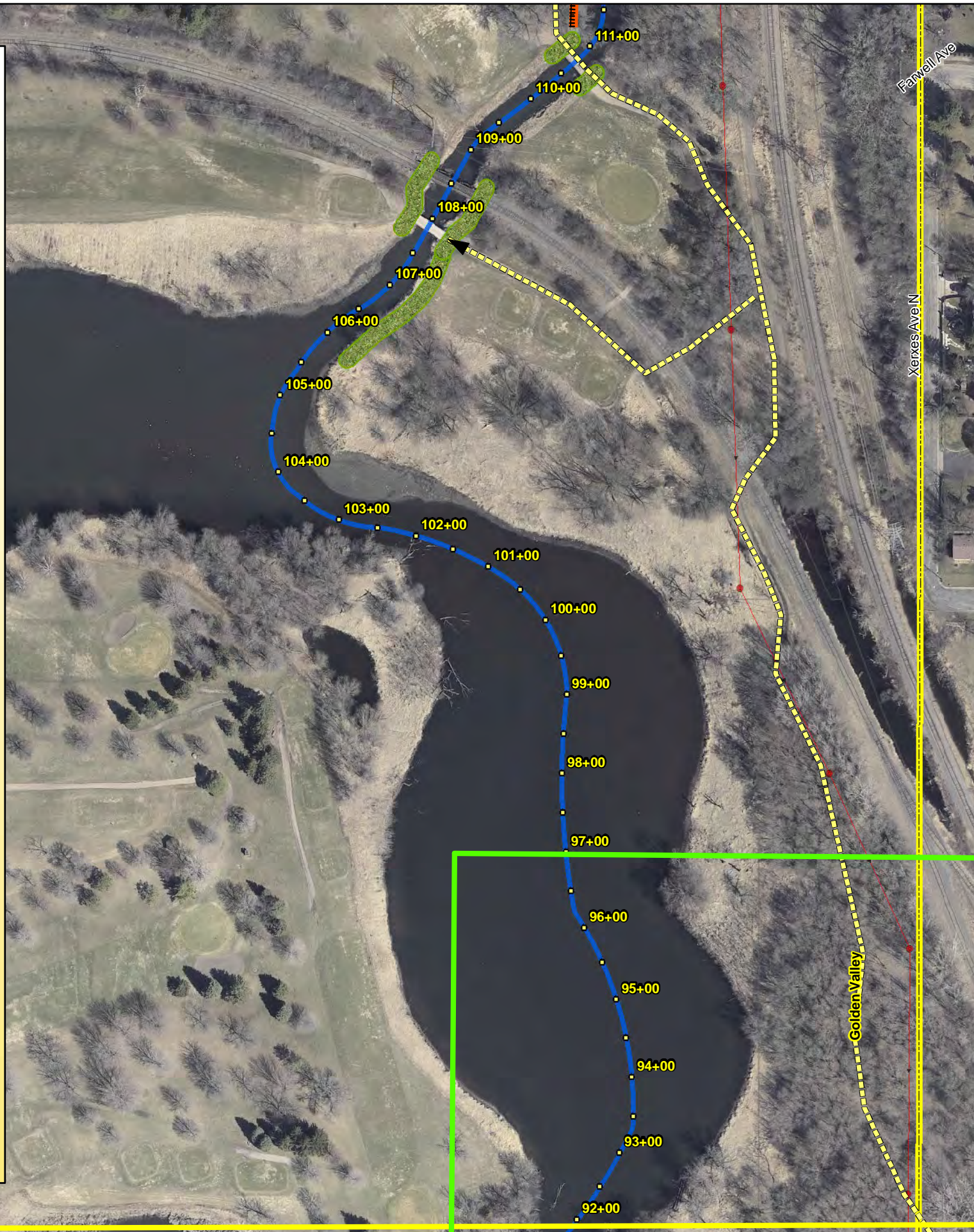
SEED MIX MNDOT 260 @ 100 LBS/AC

FERTILIZER MNDOT TYPE 2 @ 200 LBS/AC

STRAW MULCH @ 2 TON/AC AND DISC ANCHORED MULCHED (SLOPES LESS THAN 4:1)

EROSION BLANKET MNDOT TYPE 3 FOR (SLOPES GREATER THAN 4:1)

AREAS REQUIRING TURF ESTABLISHMENT WILL BE DIRECTED BY THE ENGINEER IN THE FIELD AND INCLUDE EITHER TYPE 1 MULCH MATERIAL OR CATEGORY 3 EROSION CONTROL BLANKET.



**Main Stem of
Bassett Creek
Restoration Project
SWPPP
Area B
Station 110+00 - 92+50**

Legend

- ★ BCWMC Maintenance Locations
- B
- C
- Access Route
- Silt Fence
- Silt Curtain
- Plantings Tree
- Plantings Shrubs
- Wetland Seeding
- Wildflower Planting
- Upland Seeding
- Construction Entrance
- City Boundary
- Bassett Creek
- Storm Sewer Manholes
- Storm Sewer
- Watermain
- Sanitary Sewer
- Sanitary Sewer Manhole
- Property Boundary



Feet



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

ENGINEER
DATE: 02/05/2014 LIC. NO.: 15998



Main Stem of Bassett Creek Restoration Project

SWPPP Area C Station 92+50 - 74+00

Legend

- Maintenance Area B
- Maintenance Area C
- BCWMC Maintenance Locations
- Access Route
- Silt Fence
- Silt Curtain
- Plantings Tree
- Plantings Shrubs
- Wetland Seeding
- Wildflower Planting
- Upland Seeding
- Construction Entrance
- City Boundary
- Bassett Creek
- Property Boundary



0 50 100 200 Feet



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

ENGINEER
DATE: 02/05/2014 LIC. NO.: 15998

SHEET 30 OF 32 SHEETS

EROSION AND SEDIMENT CONTROL NOTES:

LOCATION OF SILT FENCE SHOWN ON THE PLAN IS APPROXIMATE AND WILL BE STAKED IN THE FIELD PRIOR TO CONSTRUCTION.

ACCESS ROUTES MUST BE REGULARLY MAINTAINED AND IF ARE NOT BEING ACTIVELY USED MUST BE STABILIZED WITHIN 48 HOURS WITH A TEMPORARY SEED MIX AND STRAW MULCH.

EXPOSED SOILS IMMEDIATELY ADJACENT TO THE CREEK, WHICH ARE NOT ACTIVELY BEING WORKED MUST TO BE STABILIZED WITHIN 48 HOURS WITH A TEMPORARY SEED MIX AND STRAW MULCH.

THE CONTRACTOR SHALL PROVIDE APPROPRIATE EROSION AND SEDIMENT CONTROL DEVICES FOR ALL STOCKPILES.

ROCK CONSTRUCTION ENTRANCES MUST BE INSTALLED AT EACH ACCESS POINT PRIOR TO COMMENCING WORK.

STREETS, DRIVEWAYS, AND PARKING LOTS IN AND ADJACENT TO THE PROJECT SHALL REMAIN CLEAN AND PASSABLE AT ALL TIMES. ANY SEDIMENT OR DEBRIS SHALL BE REMOVED WITHIN 24 HOURS, OR AS OFTEN TO ENSURE PUBLIC SAFETY.

DEWATERING WILL REQUIRE AN ADDITIONAL SITE PLAN.

SEEDING SPECIFICATIONS:

SEEDING NATIVE GRASSES

RESHAPED AND DISTURBED AREAS ALONG BASSETT CREEK WILL BE REESTABLISHED AS DIRECTED BY THE ENGINEER WITH THE FOLLOWING:

SEED MIX(S) BWSR W6 OR BWSR U8 OR PRAIRIE RESTORATION INC. (PRI) SHORELINE GRASS MIX OR SAVANNA GRASS MIX EACH TO BE APPLIED AT @ 20 LBS/AC.

THE BWSR W6 OR THE PRI SHORELINE SEED MIX IS A SHADE TOLERANT MIX THAT IS ABLE TO WITHSTAND INUNDATION FOR SEVERAL DAYS. THE PRI SHORELINE SEED MIX WILL BE USED ALONG THE DISTURBED SLOPES OF BASSETT CREEK FROM THE TOP OF STONE TO THE APPROXIMATE 10 YEAR STAGE ELEVATION, TO BE STAKED IN THE FIELD.

THE BWSR U8 OR THE PRI SAVANNA SEED MIX IS A SHADE TOLERANT MIX THAT IS SUITABLE FOR UPLAND AREAS. THE PRI SAVANNA SEED MIX WILL BE USED ALONG THE DISTURBED SLOPES OF BASSETT CREEK FROM THE APPROXIMATE 10 YEAR STAGE ELEVATION TO THE TOP OF SLOPE, TO BE STAKED IN THE FIELD.

THE PLACEMENT OF THESE SEED MIXES WILL BE DIRECTED BY THE ENGINEER IN THE FIELD

ADDITIONAL TEMPORARY SEED: ADDITIONAL WINTER WHEAT SHALL BE MIXED INTO PRI MIXES @ 50 LBS/AC TO PROVIDE A FAST GROWING VEGETATIVE COVER. TEMPORARY VEGETATIVE COVER MUST BE SPREAD AT 1.5 TIMES THE USUAL RATE PER ACRE. IF TEMPORARY COVER IS TO REMAIN IN PLACE BEYOND THE PRESENT GROWING SEASON, TWO-THIRDS OF THE SEED MIX SHALL BE COMPOSED OF PERENNIAL GRASSES.

SOIL STABILIZATION REQUIREMENTS FOR SEEDING NATIVE GRASSES:

STRAW MULCH DISC ANCHOR @ 2 TON/AC (SLOPES LESS THAN 4:1)

BLANKET MNDOT TYPE IV FOR (SLOPES GREATER THAN 4:1)

THE PLACEMENT OF SOIL STABILIZATION MEASURES WILL BE DIRECTED BY THE ENGINEER IN THE FIELD.

TURF ESTABLISHMENT

AREAS DISTURBED DURING CONSTRUCTION THAT ARE NOT IMMEDIATELY ADJACENT TO BASSETT CREEK OR IN NON-MAINTAINED AREAS SHALL BE REESTABLISHED AS DIRECTED BY THE ENGINEER WITH THE FOLLOWING:

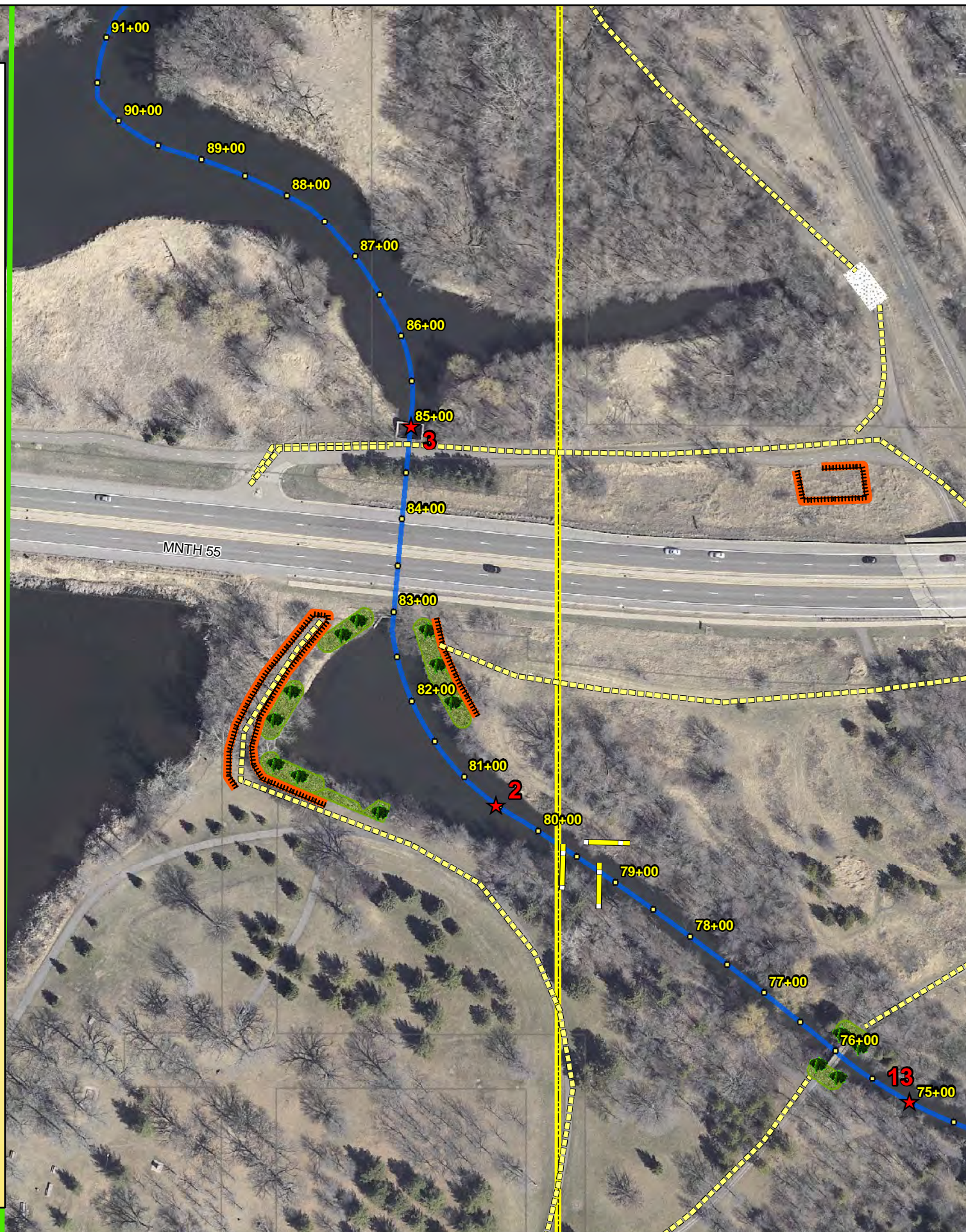
SEED MIX MNDOT 260 @ 100 LBS/AC

FERTILIZER MNDOT TYPE 2 @ 200 LBS/AC

STRAW MULCH @ 2 TON/AC AND DISC ANCHORED MULCHED (SLOPES LESS THAN 4:1)

EROSION BLANKET MNDOT TYPE 3 FOR (SLOPES GREATER THAN 4:1)

AREAS REQUIRING TURF ESTABLISHMENT WILL BE DIRECTED BY THE ENGINEER IN THE FIELD AND INCLUDE EITHER TYPE I MULCH MATERIAL OR CATEGORY 3 EROSION CONTROL BLANKET.





Main Stem of Bassett Creek Restoration Project

SWPPP Area C Station 74+00 - 52+00

Legend

- Maintenance Area B
- Maintenance Area C
- BCWMC Maintenance Locations
- Access Route
- Silt Fence
- Silt Curtain
- Plantings Tree
- Plantings Shrubs
- Wetland Seeding
- Wildflower Planting
- Upland Seeding
- Construction Entrance
- City Boundary
- Bassett Creek
- Property Boundary



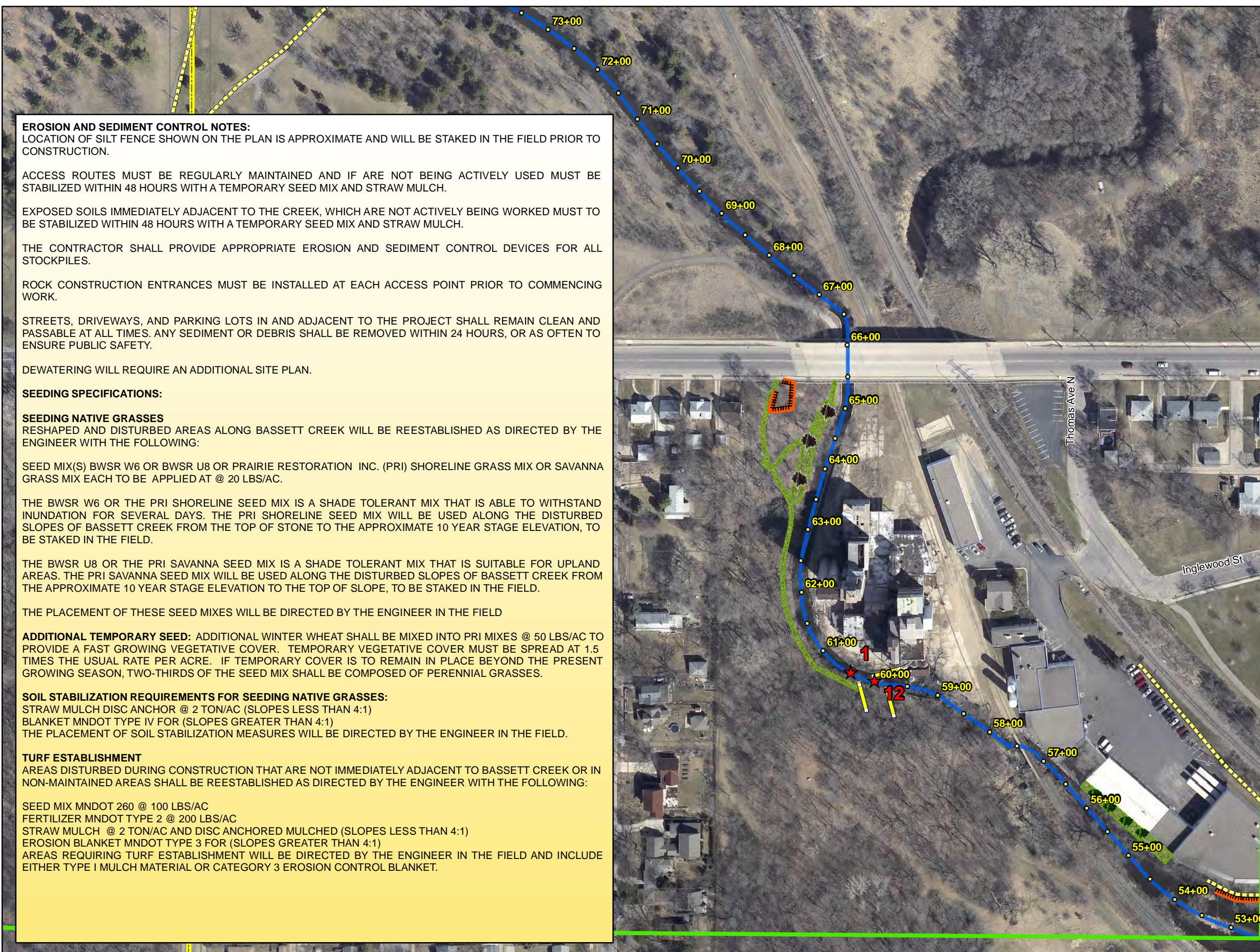
0 25 50 100 Feet



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

ENGINEER
DATE: 02/05/2013 LIC. NO.: 15998

SHEET 31 OF 32 SHEETS



EROSION AND SEDIMENT CONTROL NOTES:

LOCATION OF SILT FENCE SHOWN ON THE PLAN IS APPROXIMATE AND WILL BE STAKED IN THE FIELD PRIOR TO CONSTRUCTION.

ACCESS ROUTES MUST BE REGULARLY MAINTAINED AND IF ARE NOT BEING ACTIVELY USED MUST BE STABILIZED WITHIN 48 HOURS WITH A TEMPORARY SEED MIX AND STRAW MULCH.

EXPOSED SOILS IMMEDIATELY ADJACENT TO THE CREEK, WHICH ARE NOT ACTIVELY BEING WORKED MUST TO BE STABILIZED WITHIN 48 HOURS WITH A TEMPORARY SEED MIX AND STRAW MULCH.

THE CONTRACTOR SHALL PROVIDE APPROPRIATE EROSION AND SEDIMENT CONTROL DEVICES FOR ALL STOCKPILES.

ROCK CONSTRUCTION ENTRANCES MUST BE INSTALLED AT EACH ACCESS POINT PRIOR TO COMMENCING WORK.

STREETS, DRIVEWAYS, AND PARKING LOTS IN AND ADJACENT TO THE PROJECT SHALL REMAIN CLEAN AND PASSABLE AT ALL TIMES. ANY SEDIMENT OR DEBRIS SHALL BE REMOVED WITHIN 24 HOURS, OR AS OFTEN TO ENSURE PUBLIC SAFETY.

DEWATERING WILL REQUIRE AN ADDITIONAL SITE PLAN.

SEEDING SPECIFICATIONS:

SEEDING NATIVE GRASSES

RESHAPED AND DISTURBED AREAS ALONG BASSETT CREEK WILL BE REESTABLISHED AS DIRECTED BY THE ENGINEER WITH THE FOLLOWING:

SEED MIX(S) BWSR W6 OR BWSR U8 OR PRAIRIE RESTORATION INC. (PRI) SHORELINE GRASS MIX OR SAVANNA GRASS MIX EACH TO BE APPLIED AT @ 20 LBS/AC.

THE BWSR W6 OR THE PRI SHORELINE SEED MIX IS A SHADE TOLERANT MIX THAT IS ABLE TO WITHSTAND INUNDATION FOR SEVERAL DAYS. THE PRI SHORELINE SEED MIX WILL BE USED ALONG THE DISTURBED SLOPES OF BASSETT CREEK FROM THE TOP OF STONE TO THE APPROXIMATE 10 YEAR STAGE ELEVATION, TO BE STAKED IN THE FIELD.

THE BWSR U8 OR THE PRI SAVANNA SEED MIX IS A SHADE TOLERANT MIX THAT IS SUITABLE FOR UPLAND AREAS. THE PRI SAVANNA SEED MIX WILL BE USED ALONG THE DISTURBED SLOPES OF BASSETT CREEK FROM THE APPROXIMATE 10 YEAR STAGE ELEVATION TO THE TOP OF SLOPE, TO BE STAKED IN THE FIELD.

THE PLACEMENT OF THESE SEED MIXES WILL BE DIRECTED BY THE ENGINEER IN THE FIELD

ADDITIONAL TEMPORARY SEED: ADDITIONAL WINTER WHEAT SHALL BE MIXED INTO PRI MIXES @ 50 LBS/AC TO PROVIDE A FAST GROWING VEGETATIVE COVER. TEMPORARY VEGETATIVE COVER MUST BE SPREAD AT 1.5 TIMES THE USUAL RATE PER ACRE. IF TEMPORARY COVER IS TO REMAIN IN PLACE BEYOND THE PRESENT GROWING SEASON, TWO-THIRDS OF THE SEED MIX SHALL BE COMPOSED OF PERENNIAL GRASSES.

SOIL STABILIZATION REQUIREMENTS FOR SEEDING NATIVE GRASSES:

STRAW MULCH DISC ANCHOR @ 2 TON/AC (SLOPES LESS THAN 4:1)

BLANKET MNDOT TYPE IV FOR (SLOPES GREATER THAN 4:1)

THE PLACEMENT OF SOIL STABILIZATION MEASURES WILL BE DIRECTED BY THE ENGINEER IN THE FIELD.

TURF ESTABLISHMENT

AREAS DISTURBED DURING CONSTRUCTION THAT ARE NOT IMMEDIATELY ADJACENT TO BASSETT CREEK OR IN NON-MAINTAINED AREAS SHALL BE REESTABLISHED AS DIRECTED BY THE ENGINEER WITH THE FOLLOWING:

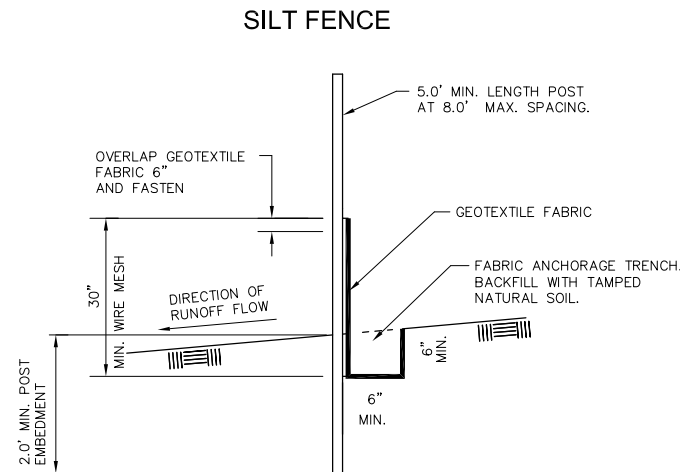
SEED MIX MNDOT 260 @ 100 LBS/AC

FERTILIZER MNDOT TYPE 2 @ 200 LBS/AC

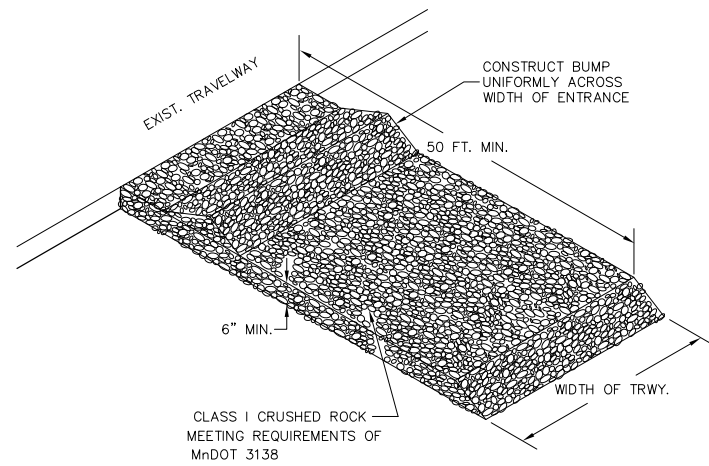
STRAW MULCH @ 2 TON/AC AND DISC ANCHORED MULCHED (SLOPES LESS THAN 4:1)

EROSION BLANKET MNDOT TYPE 3 FOR (SLOPES GREATER THAN 4:1)

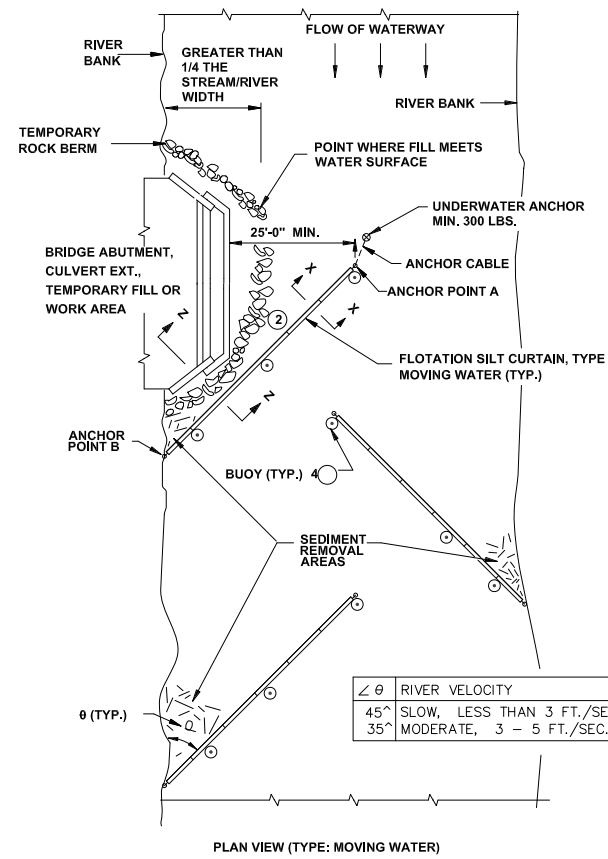
AREAS REQUIRING TURF ESTABLISHMENT WILL BE DIRECTED BY THE ENGINEER IN THE FIELD AND INCLUDE EITHER TYPE I MULCH MATERIAL OR CATEGORY 3 EROSION CONTROL BLANKET.



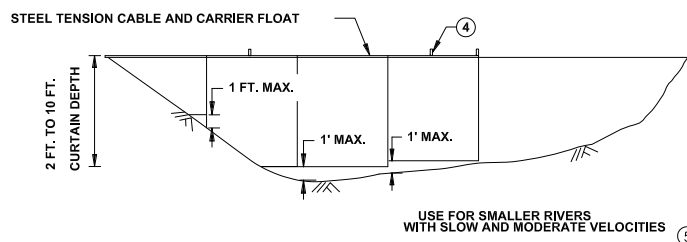
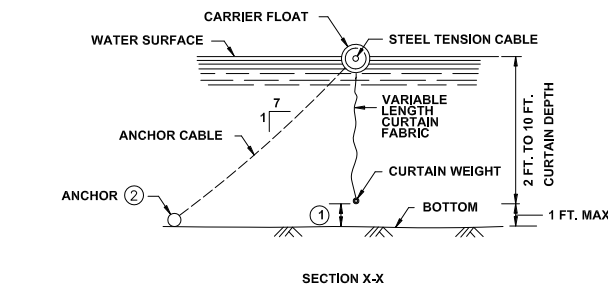
ROCK CONSTRUCTION ENTRANCE



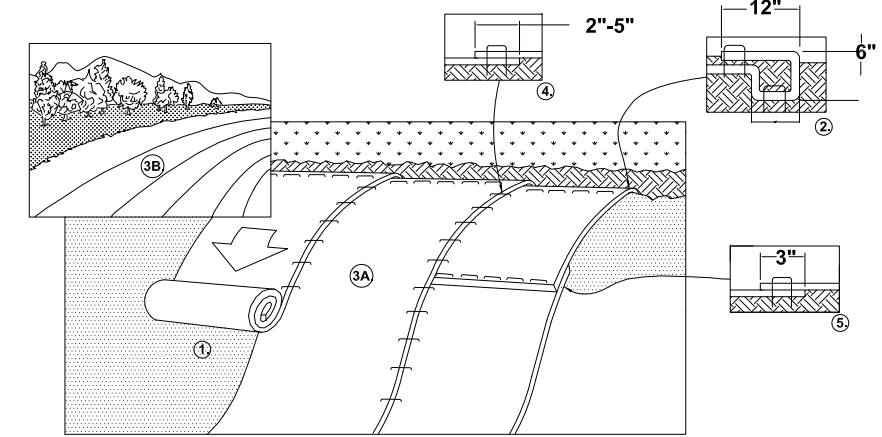
FLOATING SILT CURTAIN DETAIL



∠ θ	RIVER VELOCITY
45°	SLOW, LESS THAN 3 FT./SEC.
35°	MODERATE, 3 - 5 FT./SEC.



EROSION CONTROL BLANKET INSTALLATION DETAIL



1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED.
2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE BLANKET IN A 6" (15cm) DEEP X 6" (15cm) WIDE TRENCH WITH APPROXIMATELY 12" (30cm) OF BLANKET EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30cm) APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" (30cm) PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" (30cm) APART ACROSS THE WIDTH OF THE BLANKET.
3. ROLL THE BLANKETS (A.) DOWN OR (B.) HORIZONTALLY ACROSS THE SLOPE. BLANKETS WILL UNROLL WITH APPROPRIATE SIDE IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING OPTIONAL DOT SYSTEM, STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
4. THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH APPROXIMATELY 2"-5" (5cm-12.5cm) OVERLAP DEPENDING ON BLANKET TYPE. TO ENSURE PROPER SEAM ALIGNMENT, PLACE THE EDGE OF THE OVERLAPPING BLANKET (BLANKET BEING INSTALLED ON TOP) EVEN WITH THE COLORED SEAM STITCH ON THE PREVIOUSLY INSTALLED BLANKET.
5. CONSECUTIVE BLANKETS SPLICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" (7.5cm) OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" (30cm) APART ACROSS ENTIRE BLANKET WIDTH.

NOTE:
*IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" (15cm) MAY BE NECESSARY TO PROPERLY SECURE THE BLANKETS.

PERSON NO.	DATE	EXPLANATION

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

DATE: 02/05/2014 LIC. NO.: 15998

ENGINEER

MAIN STEM OF BASSETT CREEK RESTORATION PROJECT MINNEAPOLIS PARK AND RECREATION BOARD, MINNESOTA

701 Xenia Avenue South, Suite 300
Minneapolis, MN 55416
www.wsbeng.com

WSB & Associates, Inc.
INFRASTRUCTURE | ENGINEERING | PLANNING | CONSTRUCTION