Item 5A.
BWCMC 6-17-21

Memorandum

To: Bassett Creek Watershed Management Commission

From: Jake Newhall, PE
Laura Rescorla, PE

Date: May 19, 2021

Re: Mt. Olivet Streambank Restoration & Parkers Lake Drainage Improvements Project
WSB Project No. 016857-000

The included draft plan set for the Mt. Olivet Streambank Restoration & Parkers Lake Drainage Improvements Project shows the proposed improvements at two sites within the City of Plymouth. Along both streams, there is evidence of erosion and undercutting, as well as some sediment deposition. Both streams are intermittent and are not waters of the State.

A. Proposed Improvements

The proposed improvements include bioengineering the stabilize the stream banks, placement of rock where the erosion is most severe, rock ditch checks to hold and slow down water, and rock plunge pools. The bioengineering techniques include placement of erosion control blanket, seeding with a native woodlands seed mix, and placement of live stakes. In select locations, onsite trees will be anchored into the streambank to provide additional, natural protection.

The proposed improvements follow the recommendations of the feasibility study for the project, dated June 2020. The differences are documented below.

1. Rock cross vanes vs. Rock/Rock log ditch checks

The feasibility study recommended rock cross vanes while we have proposed rock ditch checks and rock log ditch checks. These structures act very similarly to slow down water and direct it away from erosion-vulnerable streambanks. We do not view this as a substantial change.

2. Root wads

The feasibility study recommended roots wads at various locations throughout the project area. We have not included them in the proposed improvements due to the intermittent nature of the stream flow. With alternating periods of wet and dry conditions, the root wads would not serve their intended function and would be prone to rotting.

3. Hard armoring and riprap revetment

Although the feasibility study did not include areas of hard armoring throughout the project area, we have included it in the areas with the most evidence of or susceptibility to future erosion. Site visits with the City and 2D modeling helped to locate the proposed areas of hard armoring. We believe this is an important departure from the recommendations of the feasibility study to maintain the integrity of the improved

701 XENIA AVENUE S | SUITE 300 | MINNEAPOLIS, MN | 55416 | 763.541.4800 | WSBENG.COM

streambanks and prevent downstream sediment pollutant loads. Fieldstone will be used to provide the most natural aesthetics. Additionally, because these streams are intermittent, there is not the same need to provide habitat for fish and wildlife that there would be otherwise.

The feasibility study recommended riprap revetments at several places where roof drains from apartments drain to the Parkers Lake stream. However, because there was not evidence of erosion at these locations, we did not propose riprap and instead will continue to rely on the existing vegetation to prevent erosion.

4. **Rock riffle vs. Rock plunge pool**

The feasibility study recommended a rock riffle at the downstream end of the Parkers Lake stream. We proposed a rock plunge pool at that location, and approximately 120 feet upstream, to provide some energy dissipation and slow the water at both locations.

B. Water Quality Modeling

The water quality modeling that was completed for the feasibility study was updated for the proposed improvements. The Total Suspended Solids (TSS) and Total Phosphorus (TP) reductions resulting from the proposed project are shown in **Table 1**.

Table 1: Total Suspended Solids (TSS) and Total Phosphorus (TP) Reductions

	TSS Reduction (lb/year)		TP Reduction (lb/year)	
	Feasibility	**Proposed**	**Feasibility**	**Proposed**
Mt. Olivet	10,560	10,720	5.28	5.36
Parkers Lake	40,140	44,120	20.1	22.1

C. Hydraulic Modeling

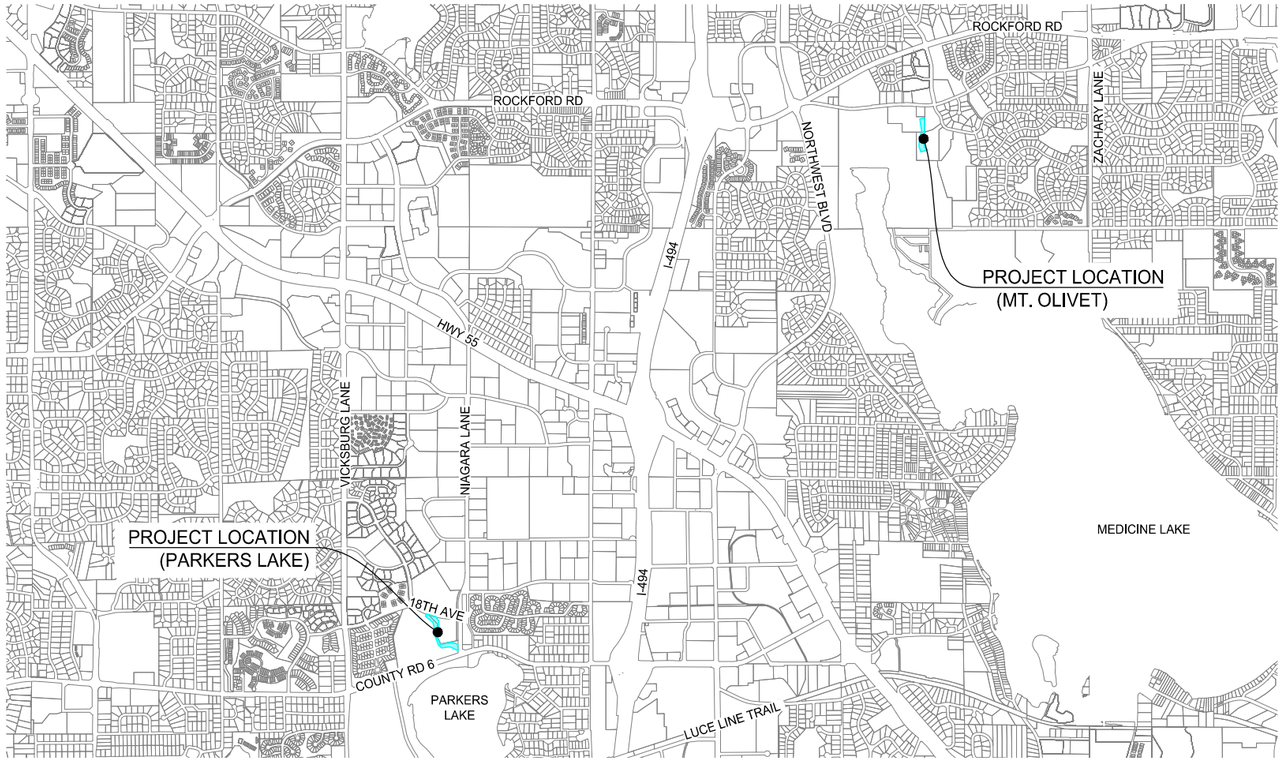
HEC-RAS 2D was used to determine areas of potential erosion based on the existing conditions of the two sites. Existing survey data was merged with LiDAR data to create an existing condition terrain Data Elevation Model (DEM). Manning's n values were determined based on existing site conditions; these values were spatially varied within the HEC-RAS model. Inflow boundary conditions were set as a constant inflow hydrograph. Flow rates from the project's feasibility report and computed full-pipe flow for additional inlets were used to determine peak flow rates for the 100-year storm event to produce the inflow hydrographs.

Results from the 2D models were reviewed in HEC-RAS and exported as a raster to produce maps showing the maximum velocity along each of the streams. At the Mt. Olivet site, the peak flow is maintained within the main channel, and velocities are highest between stations 1+50 and 5+00. At the Parkers Lake site, the flows are much greater. Along the upstream portion of the project adjacent to the tennis courts, flow is maintained within the stream, however, at the downstream portion prior to the Parkers Lake Park outlet, flow leaves the main channel and exits through the adjacent pedestrian trail tunnel under County Road 6 and ultimately flows to Parkers Lake. Velocity is highest at stations 11+00-11+50, 13+50, and 31+00.

These results, along with areas of observed erosion and undercutting documented during site visits, provide the basis of the placement of hard armoring along the streams.

MT. OLIVET STREAMBANK RESTORATION & PARKERS LAKE DRAINAGE IMPROVEMENTS PROJECT

CITY OF PLYMOUTH & BASSETT CREEK WATERSHED MANAGEMENT COMMISSION



PROJECT LOCATION MAP

GOVERNING SPECIFICATIONS

THE 2018 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN.

ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE LATEST EDITION OF THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING THE LATEST FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS.

PLAN SET INDEX

City of Plymouth

THIS PLAN SET CONTAINS 13 SHEETS

THIS PLAN SET HAS BEEN PREPARED FOR:

CITY OF PLYMOUTH
3400 PLYMOUTH BOULEVARD
PLYMOUTH, MN 55447-1482
(763) 509-5000

BASSETT CREEK WATERSHED MANAGEMENT COMMISSION
C/O 16145 HILLCREST LANE
EDEN PRAIRIE, MN 55346
(952) 270-1990

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

wsb

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.

JACOB H. NEWHALL, P.E.

DATE: XX/XX/2021 LICENSE NUMBER: 49170

WSB PROJ. NO. 016857-000

SHEET 1 OF 13

EXCAVATION NOTICE SYSTEM

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

PROJECT LOCATION

COUNTY: HENNEPIN

N

0 1600 3200
SCALE IN FEET

UTILITY INFORMATION

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS UTILITY QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA."

GOPHER ONE CALL TICKET NUMBER: XXXXXXXX

UTILITY COORDINATION MEETING HELD ON: XXXXXXXXXXX

PLAN REVISIONS		
DATE	SHEET NO.	APPROVED BY

MT. OLIVET

LEGEND

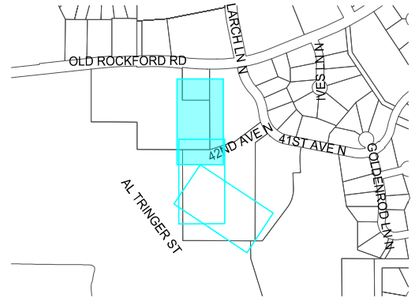
- EXISTING CONTOUR
- STREAM CENTERLINE
- SANITARY SEWER PIPE
- STORM SEWER PIPE
- FLARED END SECTION
- TREE - DECIDUOUS
- TREE - DECIDUOUS - TO BE REMOVED

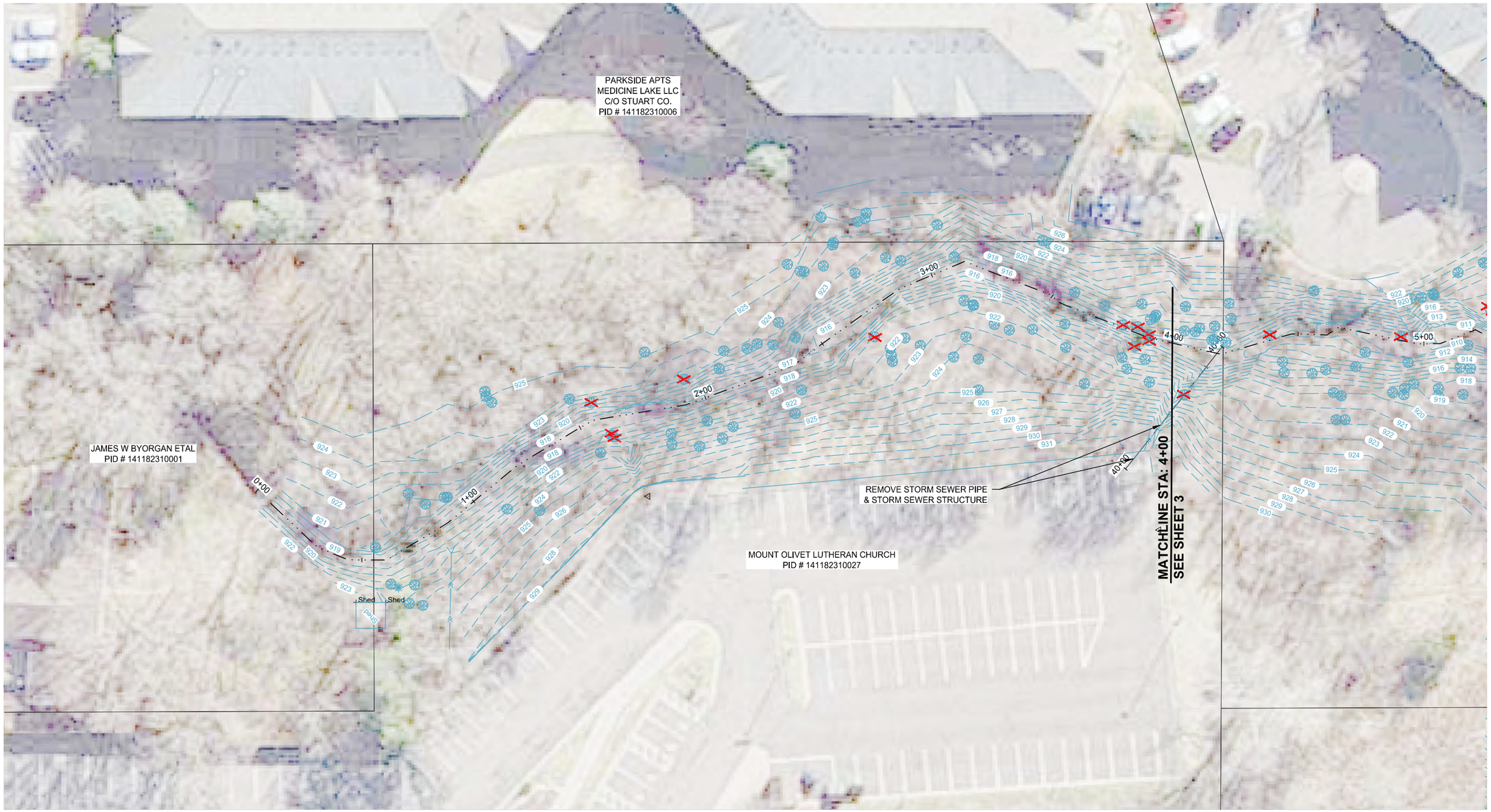
N

0 20 40

H: SCALE IN FEET

LOCATION





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City of Plymouth

Minnehaha Creek Watershed District

wsb

WSB PROJECT NO.: 016857-000

SCALE:	DESIGN BY:
AS SHOWN	LGR
PLAN BY:	CHECK BY:
CKJ	JHN

REVISIONS

NO.	DATE	DESCRIPTION

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MT. OLIVET STREAMBANK RESTORATION & PARKERS LAKE DRAINAGE IMPROVEMENT PROJECT
CITY OF PLYMOUTH & BASSETT CREEK WATERSHED MANAGEMENT COMMISSION

EXISTING CONDITIONS & REMOVALS PLAN

SHEET 2 OF 13

MT. OLIVET

LEGEND

- EXISTING CONTOUR
- STREAM CENTERLINE
- SANITARY SEWER PIPE
- STORM SEWER PIPE
- FLARED END SECTION
- TREE - DECIDUOUS
- TREE - DECIDUOUS - TO BE REMOVED

N

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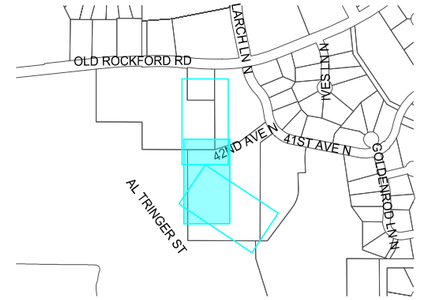
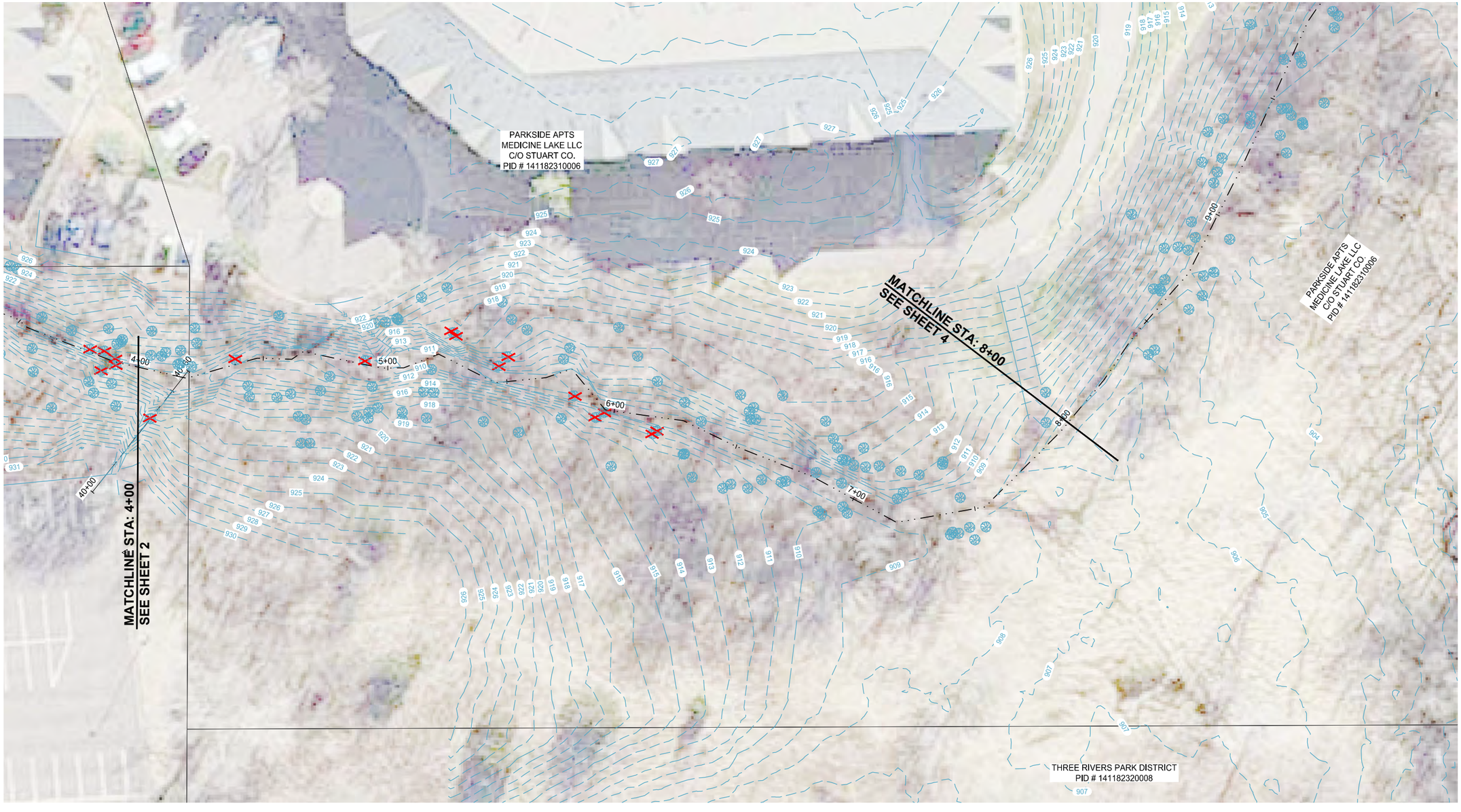
SCALE IN FEET

LOCATION





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City of Plymouth

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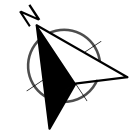
EXISTING CONDITIONS & REMOVALS PLAN

SHEET 3 OF 13

MT. OLIVET



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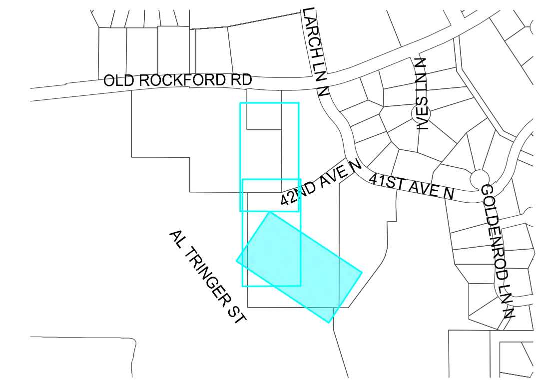
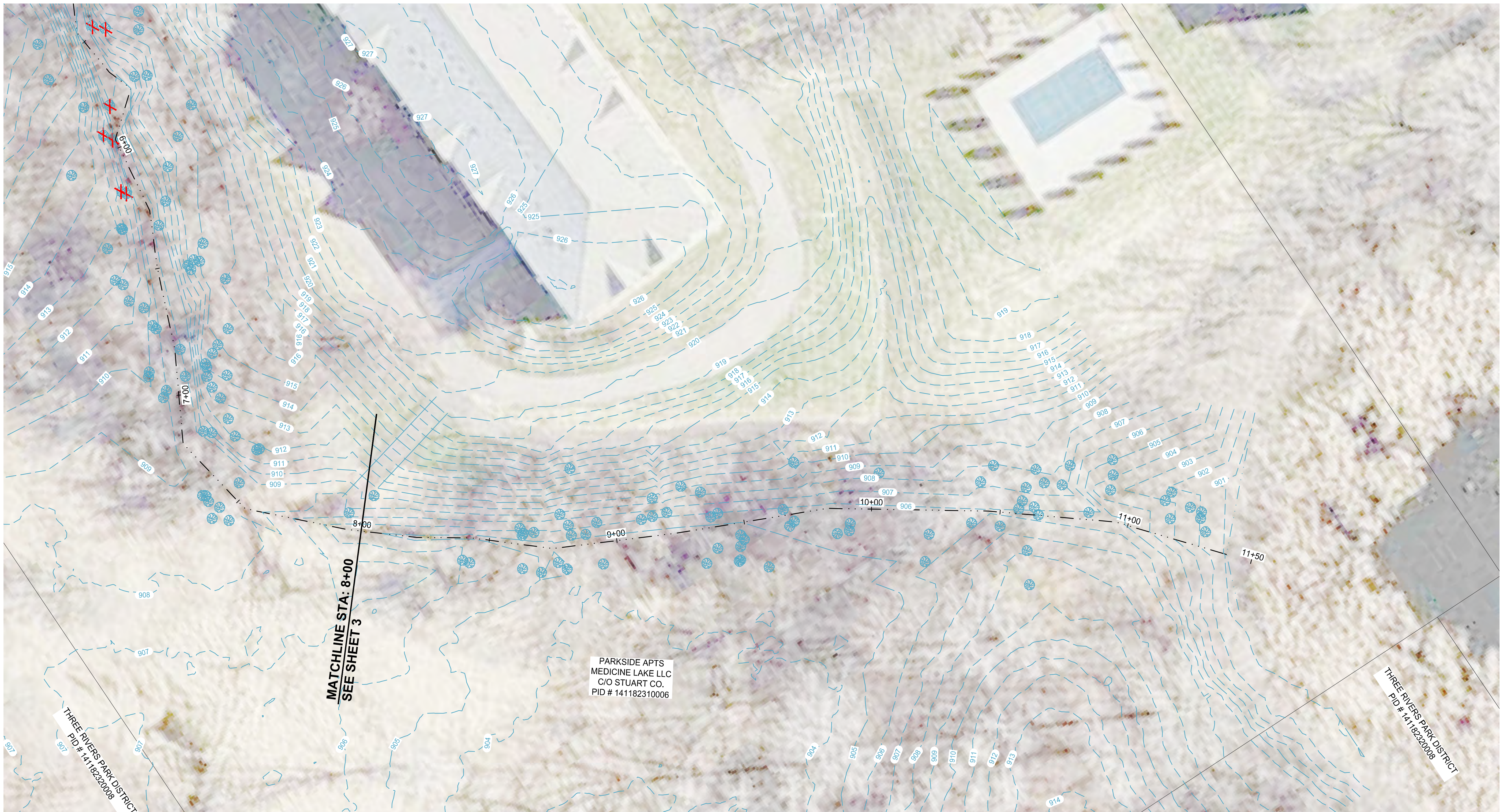
LEGEND

- EXISTING CONTOUR
- STREAM CENTERLINE
- SANITARY SEWER PIPE
- STORM SEWER PIPE
- FLARED END SECTION
- TREE - DECIDUOUS
- TREE - DECIDUOUS - TO BE REMOVED

LOCATION





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EXISTING CONDITIONS & REMOVALS PLAN

SHEET 4 OF 13

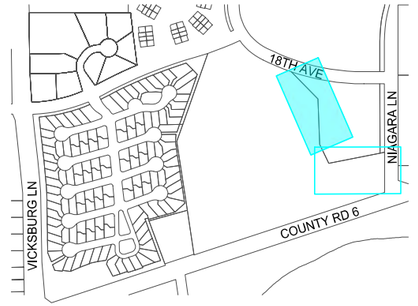
PARKERS LAKE

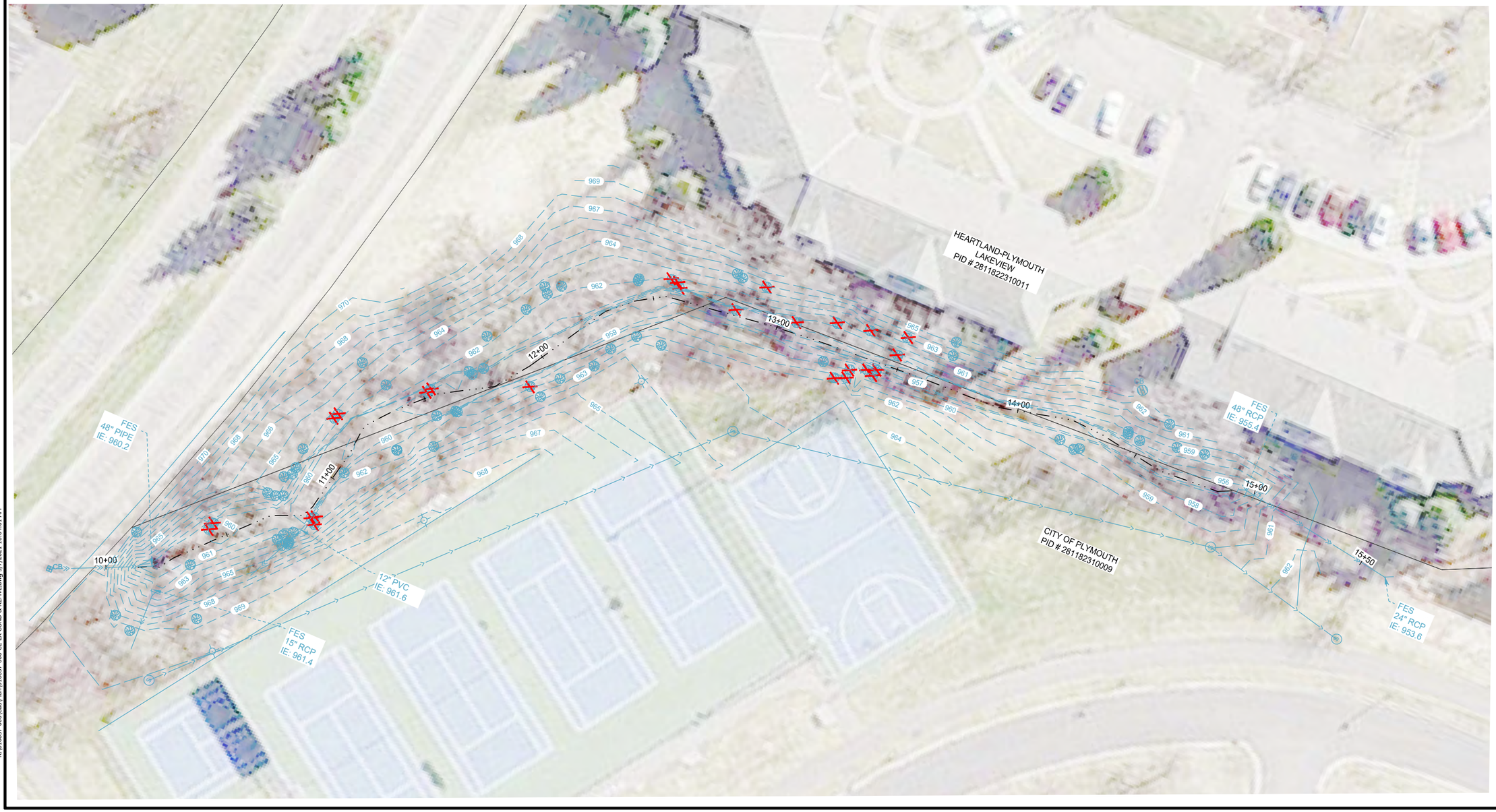
0 20 40
H: SCALE IN FEET

LEGEND

- EXISTING CONTOUR
- STREAM CENTERLINE
- SANITARY SEWER PIPE
- STORM SEWER PIPE
- SANITARY SEWER MANHOLE
- STORM SEWER MANHOLE
- CATCH BASIN
- FLARED END SECTION
- TREE - DECIDUOUS
- TREE - DECIDUOUS - TO BE REMOVED
- TREE - CONIFEROUS
- LIGHT POLE

LOCATION





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EXISTING CONDITIONS & REMOVALS PLAN

SHEET 5 OF 13

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PARKERS LAKE

N

0 20 40
H: SCALE IN FEET

LEGEND

- EXISTING CONTOUR
- STREAM CENTERLINE
- SANITARY SEWER PIPE
- STORM SEWER PIPE
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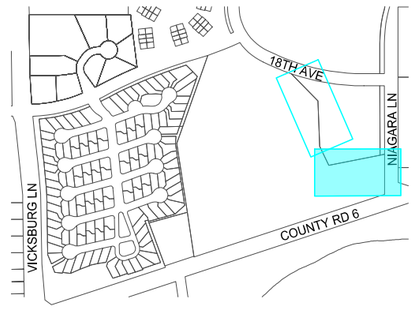
LOCATION



HEARTLAND-PLYMOUTH LAKEVIEW
PID # 2811822310011

CITY OF PLYMOUTH
PID # 2811822310007

CITY OF PLYMOUTH
PID # 281182310009

STORM MH
RE: 957.9

FES
48" RCP
IE:949.4

CB
IE:948.8

12" PVC
IE: 948.4

12" PVC
TOP IE: 945.5

52" CMP
IE: 942.4

30+00
31+00
32+00
33+00
34+00

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City of Plymouth

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EXISTING CONDITIONS & REMOVALS PLAN

SHEET
6
OF
13

MT. OLIVET

PARKSIDE APTS
MEDICINE LAKE LLC
C/O STUART CO.
PID # 141182310006

JAMES W BYORGAN ETAL
PID # 141182310001

MOUNT OLIVET LUTHERAN CHURCH
PID # 141182310027

REMOVE DEAD TREES.

REMOVE DEBRIS INCLUDING CONCRETE SLABS.

POTENTIAL CULVERT CROSSING UNDER EXISTING FOOTPATH.

APPROXIMATE LOCATION OF EXISTING FOOTPATH.

REMOVE WOODY DEBRIS ALONG CHANNEL BANKS.

REMOVE CONCRETE DEBRIS.

RE-GRADE SLOPE TO ESTABLISH COVER AND VEGETATION OVER PROPOSED PIPE.

CBMH-1

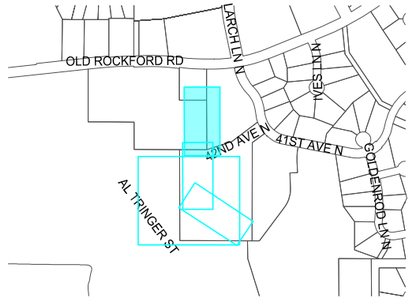
REPAIR CURB AND GUTTER AND BITUMINOUS PAVEMENT PATCHING AS NECESSARY. LIMIT IMPACTS TO PARKING LOT AS MUCH AS POSSIBLE.

MATCHLINE STA: 4+00
SEE SHEET 8

0+00 1+00 2+00 3+00 4+00

Shed Shed

LOCATION



NOTES:
1. TREES 6" IN DIAMETER OR LARGER TO BE REMOVED ARE SHOWN IN THE PLANS. TREES UNDER 6" IN DIAMETER SHALL BE REMOVED WHERE PROPOSED GRADING DICTATES AND AS DIRECTED BY THE ENGINEER IN THE FIELD.
2. ONSITE TREES TO BE ANCHORED INTO TOE OF SLOPE WHERE NOTED, MAY NOT BE ROTTEN. TREES WILL BE ANCHORED USING MODEL 68 DUCKBILL EARTH ANCHORS.
3. BIOENGINEERING TECHNIQUES USED INCLUDE LIVE STAKES AND SEEDING SPECIAL (SEE SPECIFICATIONS),
4. NO BALD EAGLE NESTS WERE OBSERVED AT THE MT OLIVET SITE WHEN SURVEYED IN THE 2021 SEASON. CONTRACTOR TO CONFIRM THAT NO NEW NESTS HAVE BEEN BUILT PRIOR TO ANY TREE REMOVAL DURING THE 2022 NESTING SEASON (JANUARY - JULY).
5. BLANDING'S TURTLES MAY OCCUR IN THE PROJECT AREA; ENSURE THIS SPECIES IS NOT HARMED. CONTRACTOR TO INSTALL EXCLUSION FENCING PRIOR TO THE START OF THEIR HIBERNATION PERIOD (SEPTEMBER - OCTOBER) AND / OR SURVEY THE PROJECT AREA PRIOR TO THE START OF CONSTRUCTION EACH DAY FOR TURTELS AND MOVE OUT OF HARM'S WAY IF FOUND.

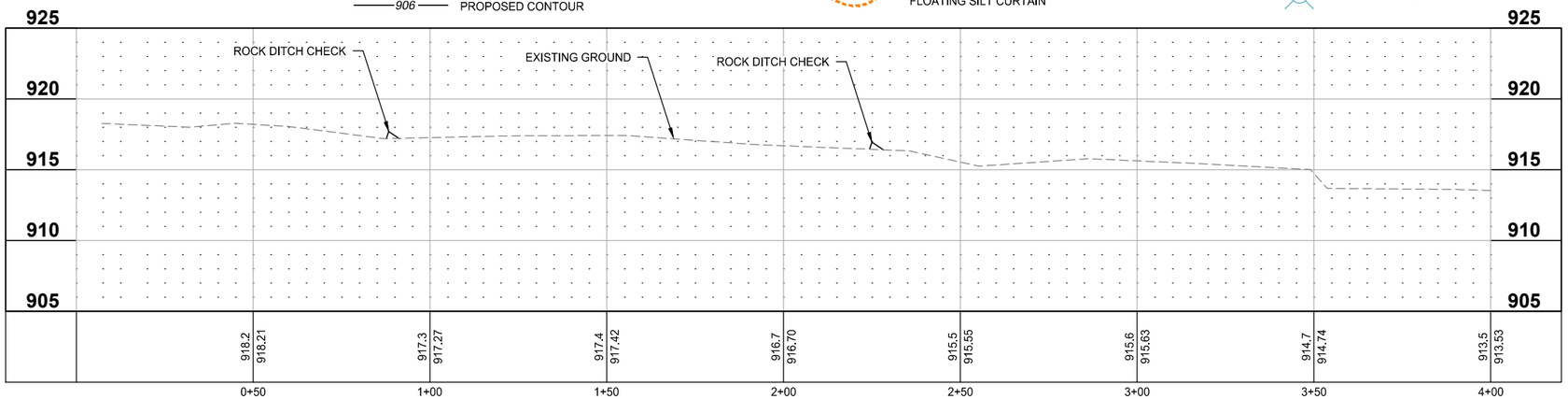
N

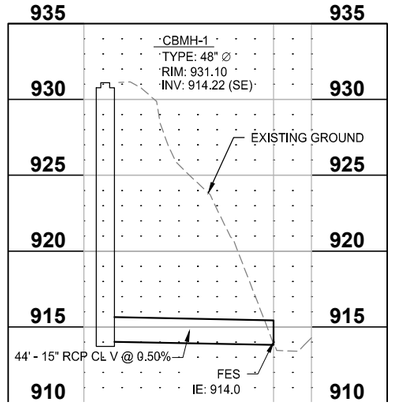
0 20 40
H: SCALE IN FEET

0 5 10
V: SCALE IN FEET

LEGEND

- ROCK DITCH CHECK (SEE SHEET 13)
- ROCK LOG DITCH CHECK (SEE SHEET 13)
- BLEND SIDE SLOPE INTO THE DITCH BOTTOM (BIOENGINEERING)
- BLEND SIDE SLOPE INTO THE DITCH BOTTOM ADD FIELDSTONE TO TOE OF SLOPE, 2 FEET HIGH (HARD ARMORING)
- REMOVE TREE
- TREE FROM ONSITE ANCHORED INTO SIDE OF SLOPE (SEE SHEET 13)
- ROCK CONSTRUCTION ENTRANCE
- 906 PROPOSED CONTOUR
- PROPOSED STORM SEWER WITH FLARED END SECTION
- PROPOSED STORM SEWER MANHOLE/CATCH BASIN
- ROCK PLUNGE POOL
- TYPE 2 WETLAND: 6 INCHES OF WATER, SEED MIX 34-271
- TYPE 3 WETLAND: 1-2 FEET OF WATER, SEED 34-181
- TYPE 4 WETLAND: 3-4 FEET OF WATER
- CONSTRUCTION LIMITS
- ACCESS ROUTE
- FLOATING SILT CURTAIN
- BIOROLL
- *906 EXISTING CONTOUR*
- *STREAM CENTERLINE*
- *SANITARY SEWER PIPE*
- *STORM SEWER PIPE*
- *SANITARY SEWER MANHOLE*
- *STORM SEWER MANHOLE*
- *CATCH BASIN*
- *FLARED END SECTION*
- *TREE - DECIDUOUS*
- *TREE - CONIFEROUS*
- *LIGHT POLE*





City of Plymouth

wsb

WSB PROJECT NO.: 016857-000

SCALE:	DESIGN BY:
AS SHOWN	LGR
PLAN BY:	CHECK BY:
CKJ	JHN

REVISIONS

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MT. OLIVET STREAMBANK RESTORATION & PARKERS LAKE DRAINAGE IMPROVEMENT PROJECT
CITY OF PLYMOUTH & BASSETT CREEK WATERSHED MANAGEMENT COMMISSION

PROPOSED SITE PLAN & PROFILE

SHEET 7 OF 13

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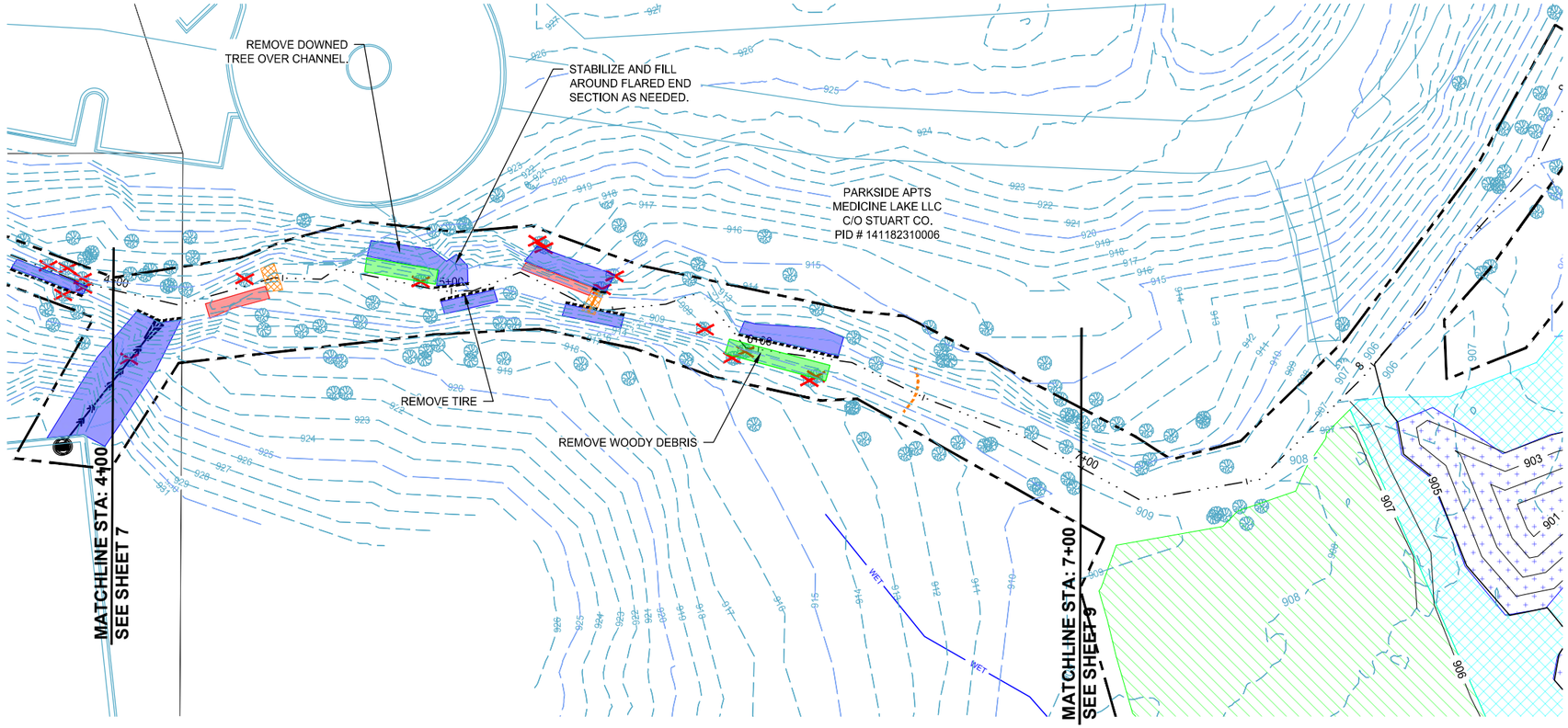
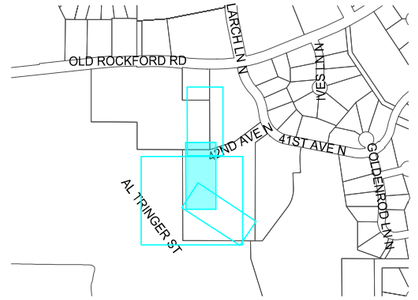
MT. OLIVET



LOCATION



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- *STORM SEWER PIPE*
- *SANITARY SEWER MANHOLE*
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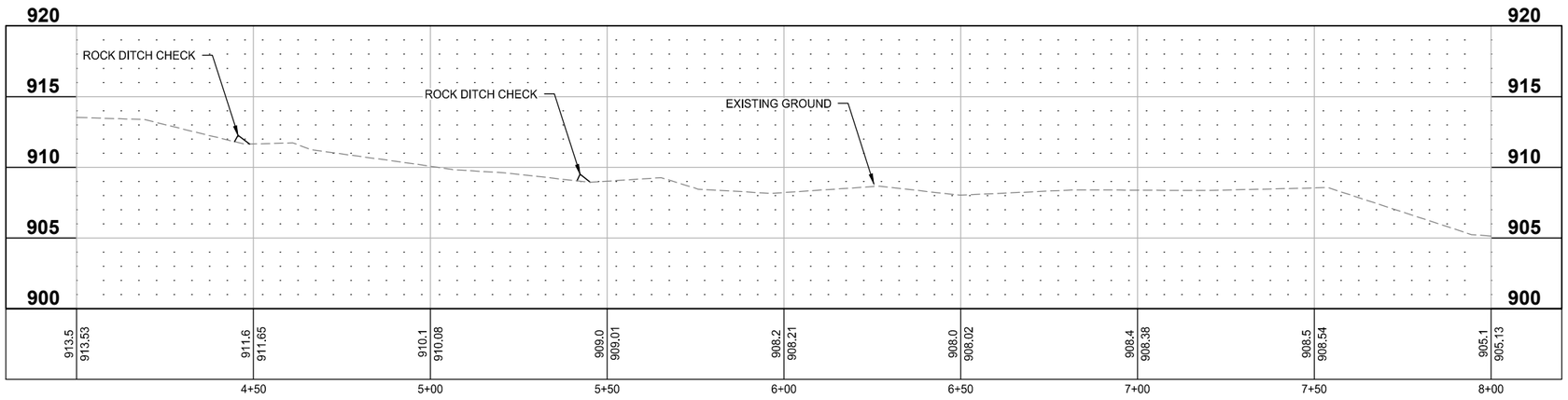
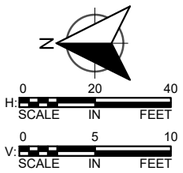
- *CATCH BASIN*
- *FLARED END SECTION*
- *TREE - DECIDUOUS*
- *TREE - CONIFEROUS*
- *LIGHT POLE*





City of Plymouth

wsb

WSB PROJECT NO.: 016857-000

SCALE:	DESIGN BY:
AS SHOWN	LGR
PLAN BY:	CHECK BY:
CKJ	JHN

REVISIONS

NO.	DATE	DESCRIPTION

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JACOB H. NEWHALL, P.E.

DATE: XX/XX/2021 LIC. NO: 49170

MT. OLIVET STREAMBANK RESTORATION & PARKERS LAKE DRAINAGE IMPROVEMENT PROJECT
CITY OF PLYMOUTH & BASSETT CREEK WATERSHED MANAGEMENT COMMISSION

PROPOSED SITE PLAN & PROFILE

SHEET 8 OF 13

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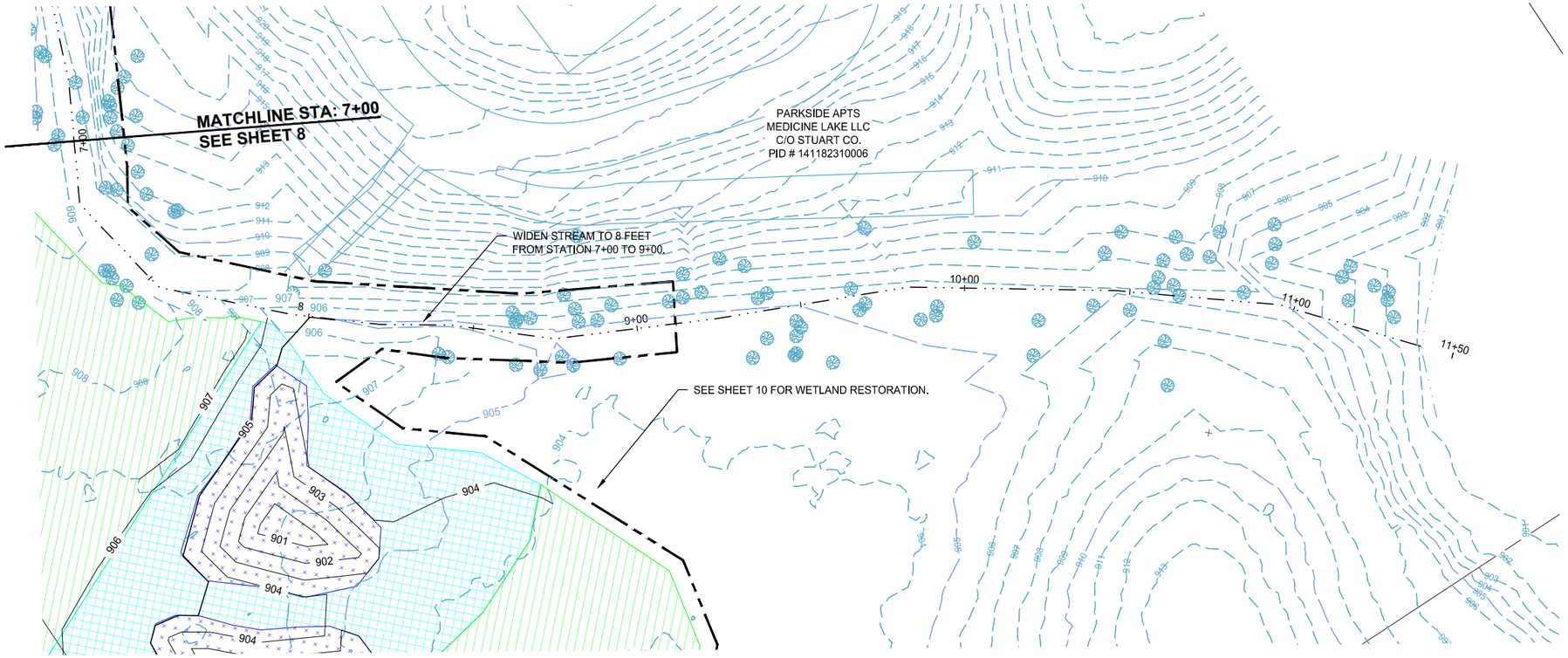
MT. OLIVET



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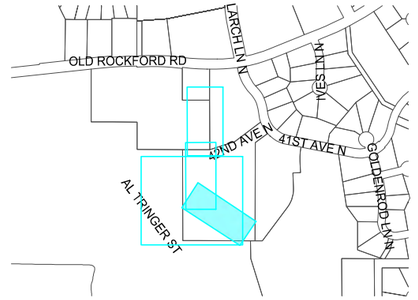

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LEGEND

- ROCK DITCH CHECK (SEE SHEET 13)
- ROCK LOG DITCH CHECK (SEE SHEET 13)
- BLEND SIDE SLOPE INTO THE DITCH BOTTOM (BIOENGINEERING)
- BLEND SIDE SLOPE INTO THE DITCH BOTTOM ADD FIELDSTONE TO TOE OF SLOPE, 2 FEET HIGH (HARD ARMORING)
- REMOVE TREE
- TREE FROM ONSITE ANCHORED INTO SIDE OF SLOPE (SEE SHEET 13)
- ROCK CONSTRUCTION ENTRANCE
- 906 PROPOSED CONTOUR
- PROPOSED STORM SEWER WITH FLARED END SECTION
- PROPOSED STORM SEWER MANHOLE/CATCH BASIN
- ROCK PLUNGE POOL
- TYPE 2 WETLAND: 6 INCHES OF WATER, SEED MIX 34-271
- TYPE 3 WETLAND: 1-2 FEET OF WATER, SEED 34-181
- TYPE 4 WETLAND: 3-4 FEET OF WATER
- CONSTRUCTION LIMITS
- ACCESS ROUTE
- BIOROLL
- FLOATING SILT CURTAIN
- 906 *EXISTING CONTOUR*
- *STREAM CENTERLINE*
- *SANITARY SEWER PIPE*
- *STORM SEWER PIPE*
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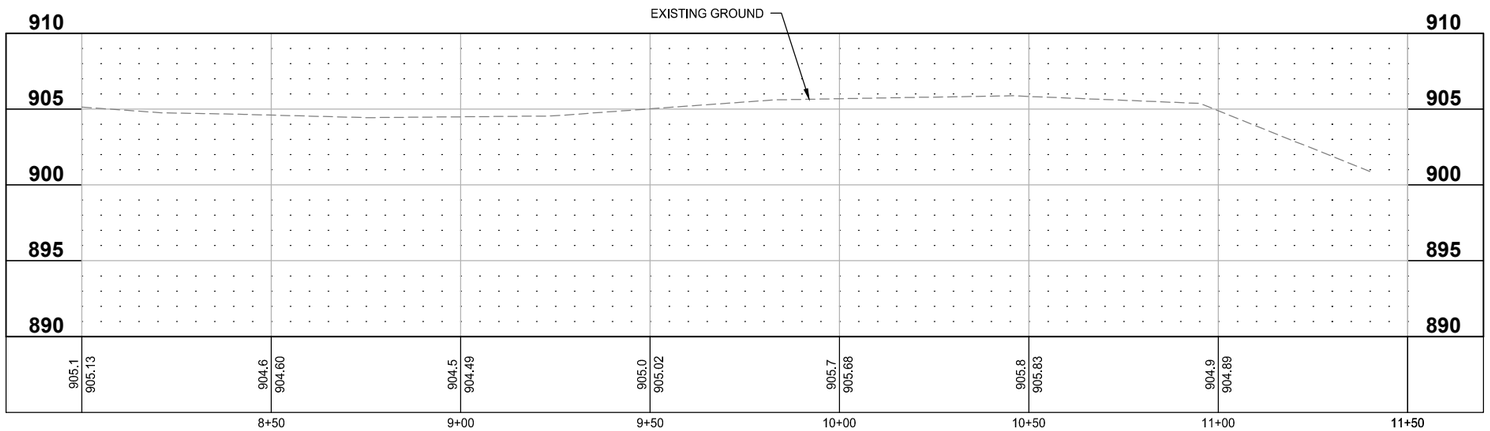

0 20 40
H: SCALE IN FEET

0 5 10
V: SCALE IN FEET

City of Plymouth

wsb

WSB PROJECT NO.: 016857-000

SCALE:	DESIGN BY:
AS SHOWN	LGR
PLAN BY:	CHECK BY:
CKJ	JHN

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MT. OLIVET STREAMBANK RESTORATION & PARKERS LAKE DRAINAGE IMPROVEMENT PROJECT
CITY OF PLYMOUTH & BASSETT CREEK WATERSHED MANAGEMENT COMMISSION

PROPOSED SITE PLAN & PROFILE

SHEET 9 OF 13

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MT. OLIVET

THREE RIVERS PARK DISTRICT
PID # 141182320008

TYPE 2 WETLAND: SCRAPE INVASIVE VEGETATION AT LEAST 6 INCHES DEEP. SEED WITH 34-271

PROTECT EXISTING TRAIL.

PARKSIDE APTS
MEDICINE LAKE LLC
C/O STUART CO.
PID # 141182310006

TYPE 4 WETLAND
THESE AREAS SHOULD HAVE
3 - 4 FEET OF WATER.

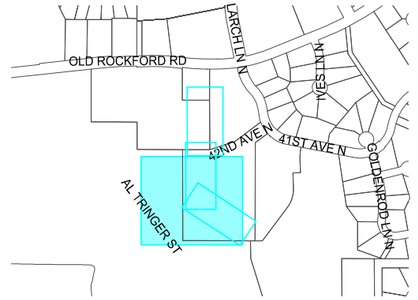
PRIMARY FLOW PATH FROM STREAM SHOULD ENTER WETLAND. CONTINUATION IN CHANNEL IS A SECONDARY FLOW PATH. CONTRACTOR TO GRADE ENTRANCE TO WETLAND TO HELP PREVENT FUTURE SHORT CIRCUITING.

FOR DISTURBED AREAS AROUND THE WETLAND DURING CONSTRUCTION: USE EROSION CONTROL BLANKET TYPE 3N ON SLOPES 3:1 OR STEEPER, OTHERWISE USE WEED-FREE MULCH DOWN TO 1' ABOVE THE NWL OF THE RESTORED WETLAND. SEED RIPARIAN AREAS WITH 34-261.

TYPE 3 WETLAND:
THIS AREA SHOULD HAVE 1 - 2 FEET OF WATER.
SEED WITH 34-181.

TYPE 2 WETLAND: SCRAPE INVASIVE VEGETATION AT LEAST 6 INCHES DEEP. SEED WITH 34-271

LOCATION



N

H: 0 30 60
SCALE IN FEET

LEGEND

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- CONSTRUCTION LIMITS
- ACCESS ROUTE
- BIOROLL

- *906 PROPOSED CONTOUR*
- *906 EXISTING CONTOUR*
- *WETLAND LINE*
- *STREAM CENTERLINE*
- *SANITARY SEWER PIPE*
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- *STORM SEWER MANHOLE*
- *CATCH BASIN*
- *FLARED END SECTION*
- *TREE - DECIDUOUS*
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- *LIGHT POLE*

NOTES:

1. SCRAPED INVASIVE VEGETATION CANNOT BE STOCKPILED IN A WETLAND OR STREAM AREA AND SHOULD BE HAULED OFF SITE.
2. EQUIPMENT MUST BE DECONTAIMINATED AND FREE FROM PLANT MATERIALS, SEED, AND AQUATIC INVASIVE SPECIES PRIOR TO WORKING ON SITE.
3. STABILIZATION OF DISTURBED SOILS SHOULD BE DONE BY PERMANENT TURF ESTABLISHMENT WHENEVER POSSIBLE.
4. IF DEWATERING IS NEEDED, A DEWATERING PLAN MUST BE APPROVED BY THE ENGINEER.

City of Plymouth

wsb

WSB PROJECT NO.:
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CITY OF PLYMOUTH & BASSETT CREEK WATERSHED MANAGEMENT COMMISSION

WETLAND RESTORATION - MT. OLIVET

SHEET 10 OF 13

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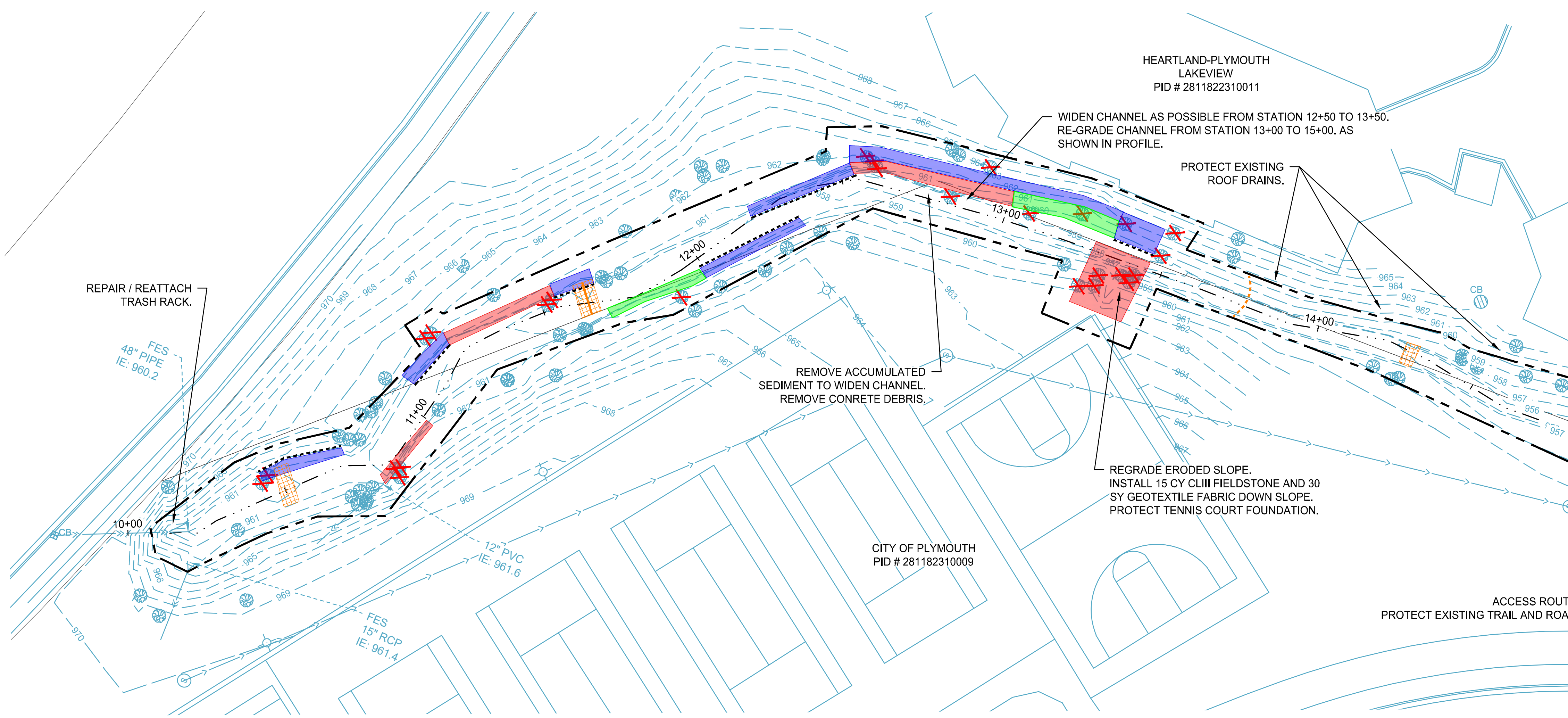

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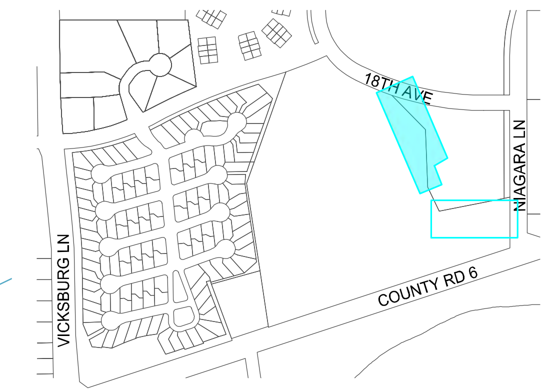

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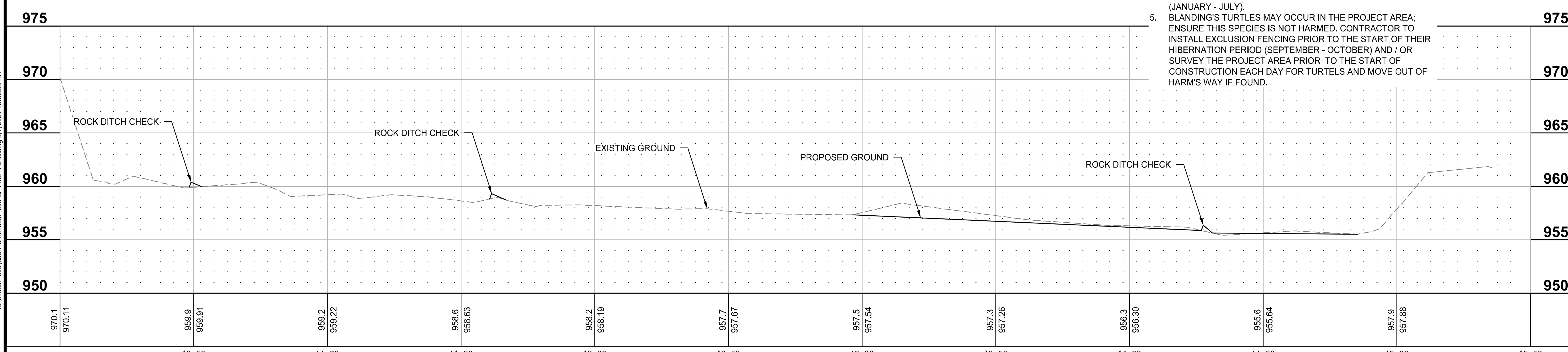

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City of Plymouth

wsb

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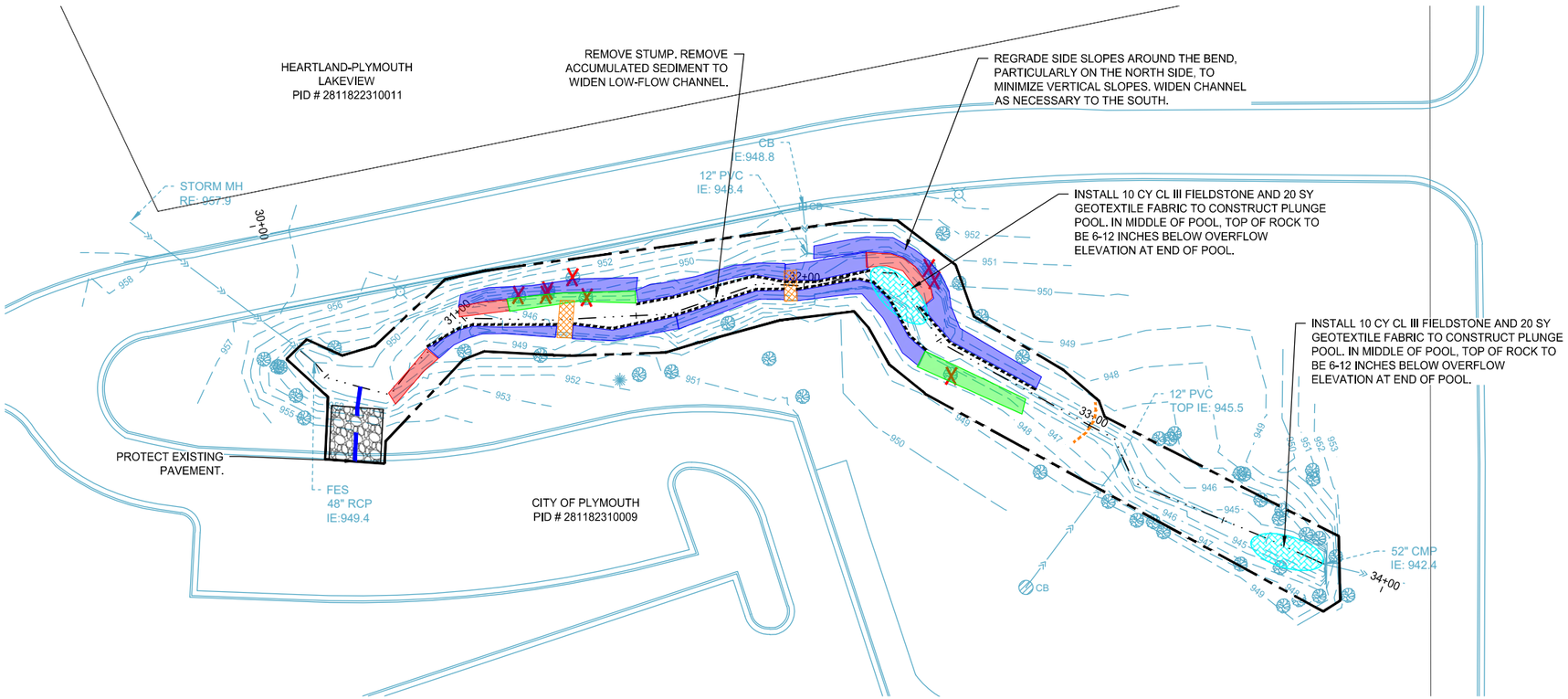
CITY OF PLYMOUTH & BASSETT CREEK WATERSHED MANAGEMENT COMMISSION

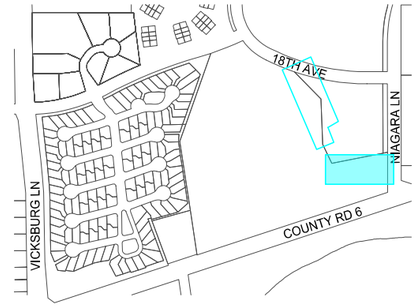
PROPOSED SITE PLAN & PROFILE

SHEET 11 OF 13

PARKERS LAKE



LOCATION



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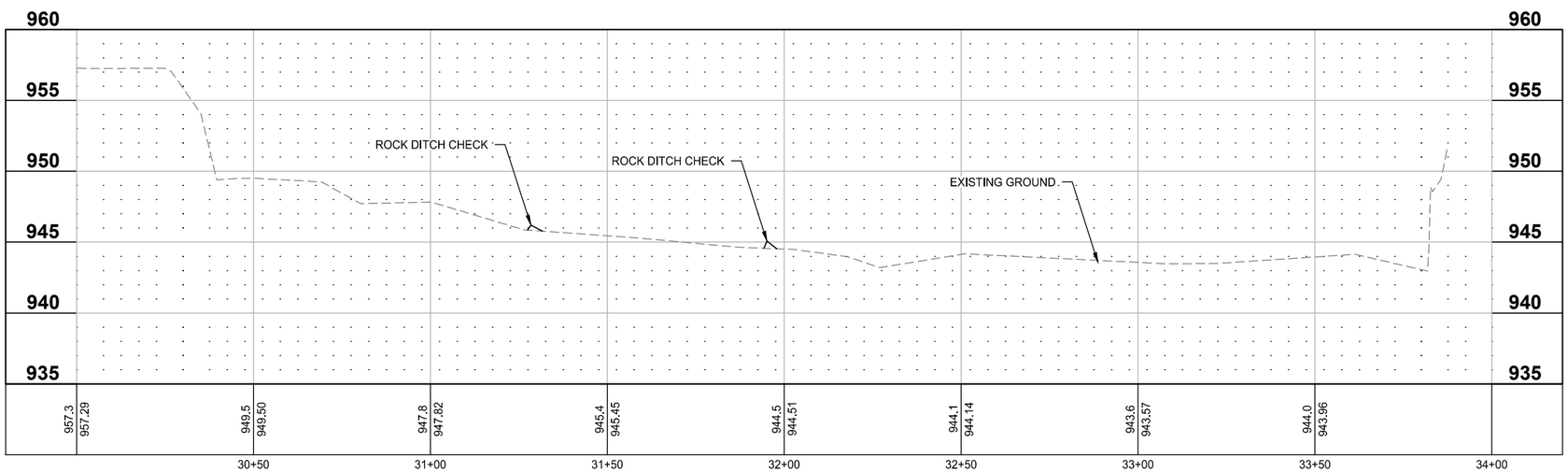

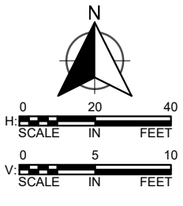

City of Plymouth

wsb

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PROPOSED SITE PLAN & PROFILE

SHEET 12 OF 13

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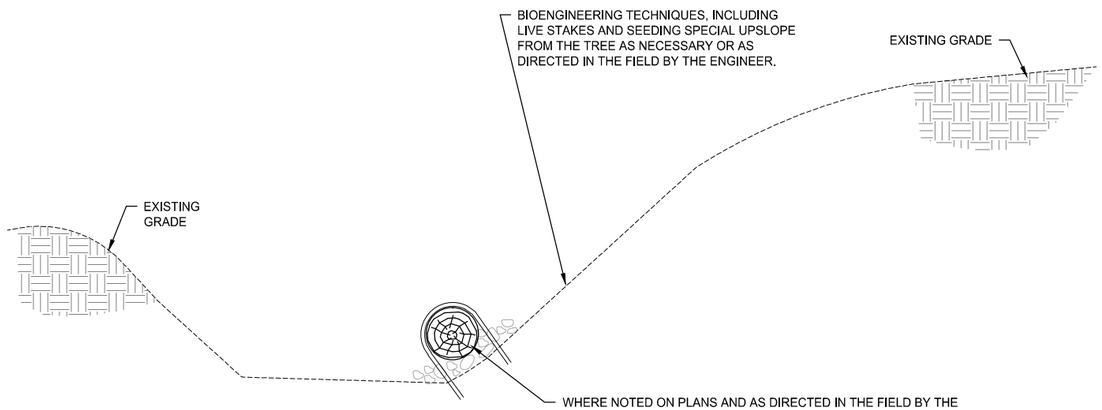
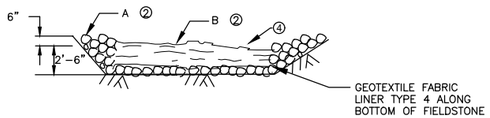
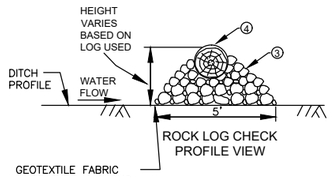


TREE ANCHORED TO SIDE SLOPE

SCALE: NOT TO SCALE



CROSS SECTION (ROCK LOG CHECK)

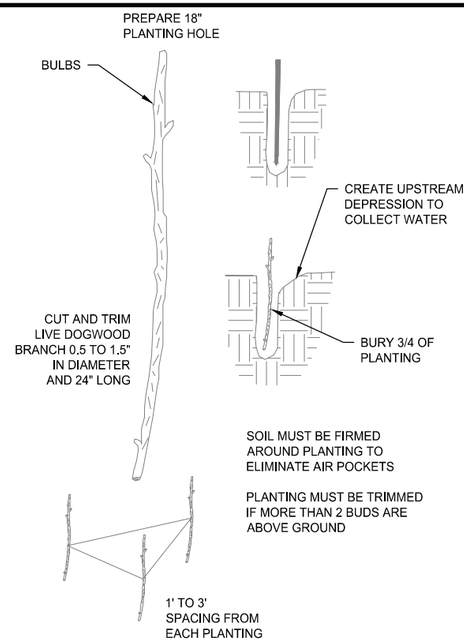


NOTES:

1. SEE MNDOT SPECS 2573, 3601, 3733 & 3889
2. POINT "A" MUST BE A MINIMUM OF 6 INCHES HIGHER THAN POINT "B" TO ENSURE THAT WATER FLOWS OVER THE DITCH CHECK AND NOT AROUND THE ENDS.
3. CLASS I-IV RIPRAP FIELDSTONE (SPEC. 3601) WITH GEOTEXTILE FABRIC LINER, TYPE 4 (SPEC 3733)
4. ONSITE TREES BEING CLEARED SHOULD BE USED FOR LOGS WITHIN ROCK LOG DITCH CHECK. LOGS MAY NOT BE ROTTEN. LOGS SHOULD BE ANCHORED INTO BOTH SIDES OF THE DITCH CHECK BY RIPRAP FIELDSTONE.

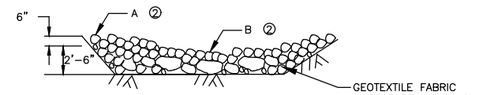
ROCK LOG DITCH CHECK DETAIL

SCALE: NOT TO SCALE

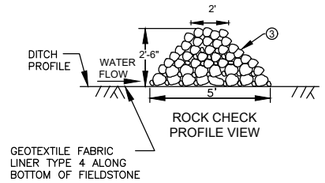


LIVE STAKING DETAIL

SCALE: NOT TO SCALE



ROCK CHECK CROSS SECTION



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ROCK DITCH CHECK DETAIL

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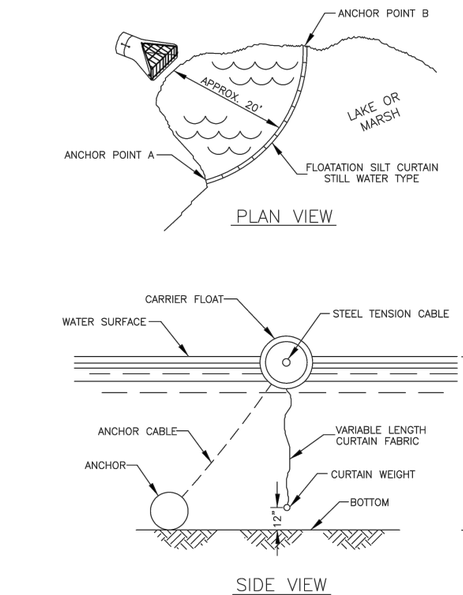
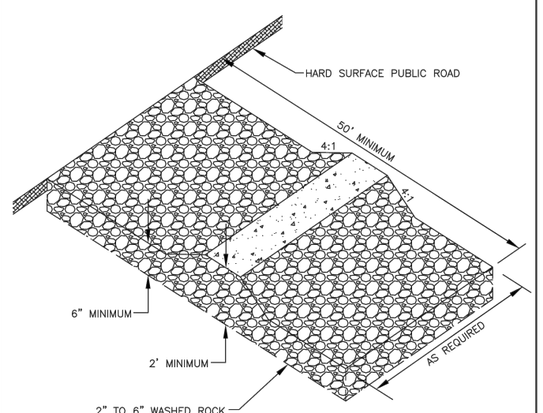


STANDARD DETAILS
FLOATATION SILT CURTAIN DETAIL
CITY OF PLYMOUTH

PUBLISHED 1-21
CITY PL. NO. ST-17
REVISED 3-16



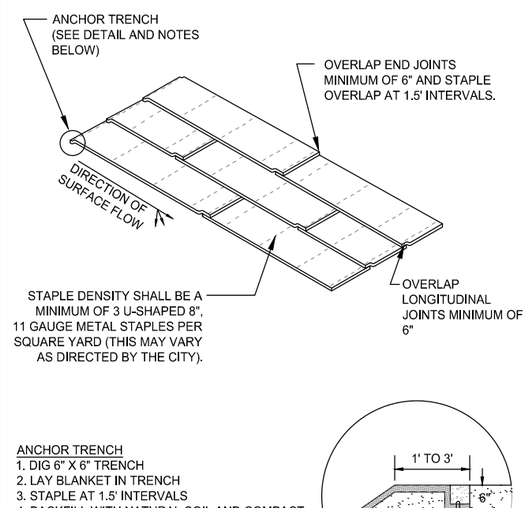
NOTES:

ROCK SHOULD BE 2" TO 6" IN SIZE SUCH AS WASHED ROCK OR CRUSHED CONCRETE

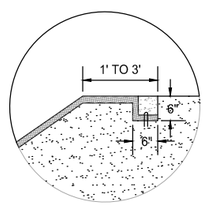
A GEOTEXTILE FABRIC MAY BE USED UNDER THE ROCK TO PREVENT MIGRATION OF THE UNDERLYING SOIL INTO THE STONE.

STANDARD DETAILS
ROCK EXIT TO CONSTRUCTION SITE
CITY OF PLYMOUTH

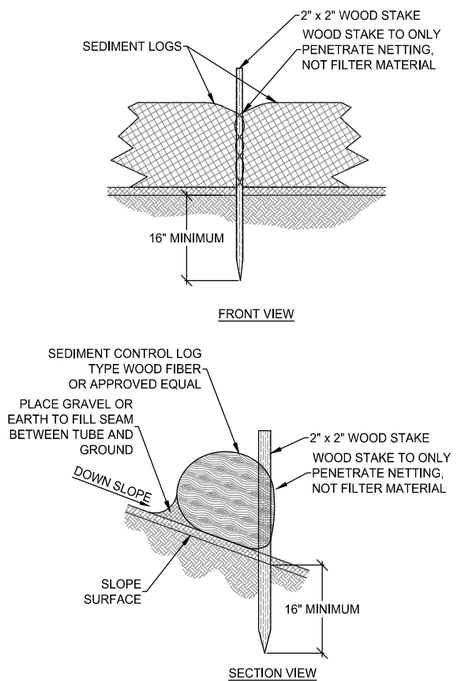
PUBLISHED 1-21
CITY PL. NO. ST-19
REVISED 1-20



ANCHOR TRENCH
1. DIG 6" X 6" TRENCH
2. LAY BLANKET IN TRENCH
3. STAPLE AT 1.5' INTERVALS
4. BACKFILL WITH NATURAL SOIL AND COMPACT
5. BLANKET LENGTH SHALL NOT EXCEED 100' WITHOUT AN ANCHOR TRENCH



EROSION CONTROL BLANKET INSTALLATION DETAIL



BIOROLL INSTALLATION DETAIL

SCALE: NOT TO SCALE

K:\016857-000\Cad\Plan\016857-000-CP-DETAILS.dwg 5/7/2021 10:07:34 AM

City of Plymouth

WSB PROJECT NO.: 016857-000

SCALE: AS SHOWN | DESIGN BY: LGR
PLAN BY: CKJ | CHECK BY: JHN

REVISIONS

NO.	DATE	DESCRIPTION

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.

JACOB H. NEWHALL, P.E.
DATE: XX/XX/2021 LIC. NO: 49170

MT. OLIVET STREAMBANK RESTORATION & PARKERS LAKE DRAINAGE IMPROVEMENT PROJECT
CITY OF PLYMOUTH & BASSETT CREEK WATERSHED MANAGEMENT COMMISSION

MISCELLANEOUS DETAILS

SHEET 13 OF 13