

**WETLAND SEED INSTALLATION**

**Description of Work:**  
Extent of wetland seeding shall be confined to the wetland fringe area as shown on the plan drawing. Seeding will be completed between October 1 (fall) to March 15 (late winter). Surrounding upland soils shall be stabilized prior to wetland seeding in order to ensure that they cannot erode into the wetland area.

**Wetland Seed Installation:**

- The soil surface shall be scarified by shallow tilling or raking.
- Seed shall be hand sown at application rates recommended by the nursery seed supplier.
- Seed shall be pressed firmly into the soil using a roller. Very light raking is an acceptable alternative but seed should not be covered more than 1/2" by soil.
- Irrigation, as necessary, will be provided until the seed germinates and wetland vegetation is well established.

**Wetland Seed Mixes:**

Wetland seed mixes shall be purchased from the J F New company or a comparable reputable supplier. The following seed mixes will be utilized:

- Emergent Wetland Seed Mix - This mix will be sown in saturated soil areas and will consist of at least 70% native permanent grass, sedge and/or rush species and at least 13 of 16 native forb species. The plants included in this mix have the ability to spread into water depths up to 12" and also to thrive in soils that are saturated for long duration.
- Swale Seed Mix - This mix will include at least 7 of 10 native permanent grass and sedge species and 10 of 13 native forb species. This mix will be sown within the entire wetland fringe. The plants in this mix tolerate short term saturation and inundation.

**WET MITIGATION AREA CONSTRUCTION SPECIFICATIONS**

**EARTHWORK**

Earthwork to be done in conjunction with work undertaken by adjacent property owners.

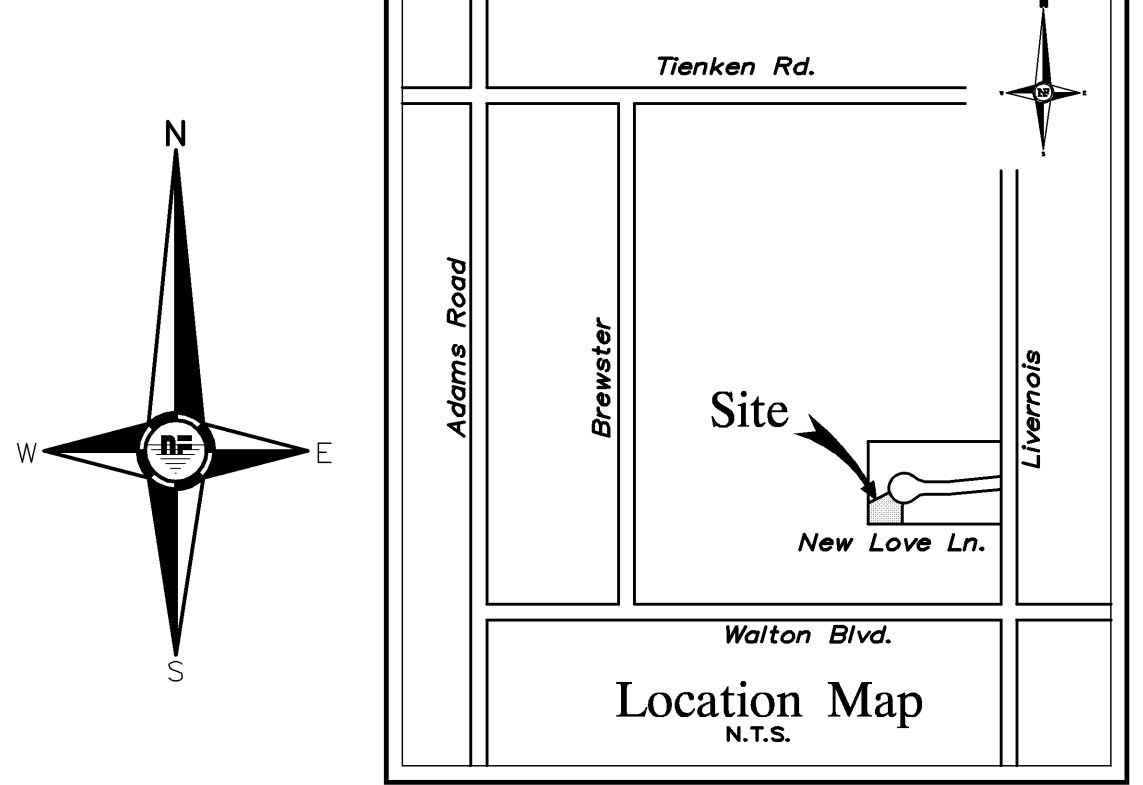
**Description of Work:**

Extent of earthwork is within the detention pond work areas shown on the plan drawing. The earthwork will proceed as follows:

- Install proper soil erosion control measures.
- Construct mitigation area to the size, shape and elevations shown on the plans. Over-excavate the draw down zone together with the long term saturation zone by 6".
- Backfill the draw down zone and the long term saturation zone with 6" of wetland soils. Wetland soil to be installed to finish grade elevations as indicated on the plans with as little work as possible taking care to avoid overcompaction. Soils should be firmed in place, however, in order to avoid any settling.
- Upon completion of finish grade construction, grade stakes shall be installed at 25' intervals showing grade elevations to define the following lines:
  - Bottom elevation of the wetland planting shelf defined by the ordinary low water mark.
  - Top elevation of the wetland planting shelf defined by the ordinary high water mark.
  - Top elevation of the long term saturation zone. The long term saturation zone is defined by a line that is 2" in elevation higher (above) the ordinary high water mark.

**Constructed grades & elevations within the draw down zone and perimeter long term saturation zone are critical.**

Project Engineer and Wetland Specialist must approve finish grades, grades, topsoil placement and depth prior to proceeding with planting and seeding. Any unsatisfactory work will be corrected prior to planting and seeding.



**NF**

**NOWAK & FRAUS**

Consulting Engineers  
Land Surveyors  
Land Planners

46777 Woodward Avenue  
Pontiac, Michigan 48342  
Tel. (248) 332-7931  
Fax. (248) 332-8257

**BENCHMARKS**

**OFF-SITE BENCHMARKS**

**NEO 418:** A standard U.S. Corps of Engineers bronze tablet stamped "760.166 D 32 1936" at Rochester, Oakland County, at the Southwest Corner of the Intersection of Main and Fourth Streets, at the First National Bank, at the Northeast corner of the building, in the concrete ledge at the base of the window, and 3.4 feet above the sidewalk. Elevation 759.73

**NEO 398:** A standard U.S. Corps of Engineers bronze tablet stamped "B 107 1934" at Rochester, Oakland County, 147 yards East of the Southeast corner of the Grand Trunk Western Railway Station, in the top of an old concrete bridge seat, 1 foot East of the West end, 7 feet South of the South rail. Elevation 728.42

**ON-SITE BENCHMARKS:**

Arrow on Fire Hydrant located on the North side of New Love Lane across from the Northwest corner of lot 20. N.A.V.D. 88 Datum 806.54

Arrow on Fire Hydrant located on the North side of New Love Lane across from the Northeast corner of lot 21. N.A.V.D. 88 Datum 807.10

**ALL ELEVATIONS ARE BASED ON FEMA N.A.V.D. 88.**

**SITE INFORMATION**

ZONED	R-2 (ONE FAMILY RESIDENTIAL DISTRICT)
TOTAL SITE AREA	41,672 S.F. OR 0.957 ACRES
MIN. YARD SETBACKS	<b>BUILDING</b>
FRONT	40.0 FT.
SIDE (EACH)	15.0 FT.
SIDE (TOTAL)	30.0 FT.
REAR	35.0 FT.
MAX. BLDG. HEIGHT	35 FT. OR 2 STORIES
MIN. LOT AREA	15,000 S.F.
MIN. LOT WIDTH	100.0 FT.
MIN. FLOOR AREA	1,400 S.F.
MAX. LOT COVERAGE	25.0 %

**LEGAL DESCRIPTION (PER CLIENT)**

Lot 17 of "Heartpeace Hills No.2", a subdivision recorded in Liber 128, Page 7, O.C.R., and part of Lot 18 of "Heartpeace Hills No.2 - Amended Plot of Lots 18 & 19, a subdivision recorded in Liber 259, Page 26, O.C.R., all of the above being part of the East 1/2 of the Southeast 1/4 of Section 9, Town 3 North, Range 11 East, City of Rochester Hills, Oakland County, Michigan more particularly described as:

Beginning at the Southwest corner of said Lot 17; thence North 00 degrees 31 minutes 30 seconds East 167.08 feet recorded and measured to the Northwest corner of said Lot 17; thence North 65 degrees 56 minutes 15 seconds East 161.54 feet (recorded as North 65 degrees 57 minutes 50 seconds East 161.39 feet) to the Northernmost corner of said Lot 17, said point being on the Southern line of New Love Lane (56.00 feet wide); thence along said line 77.40 feet along the curvature of an arc to the left (radius of 65.00 feet, included angle 68 degrees 13 minutes 43 seconds, long chord South 58 degrees 10 minutes 33 seconds East 72.91 feet as measured); thence South 01 degree 53 minutes 29 seconds West 194.42 feet as measured (recorded as South 03 degrees 13 minutes 23 seconds West 194.95 feet) to a point on the South line of said Lot 18; thence South 89 degrees 57 minutes 04 seconds West along the South line of said Lots 18 and 17, 204.30 feet as measured (recorded as Due West 204.17 feet) to the Point of beginning. Said parcel contains 0.957 acres of land. Said parcel contains 41,672 sf. or 0.957 acres of land.

Sidwell No.: 15-09-427-052

**BEARING REFERENCE**

Bearings are based upon the East line of section 9 being Due South as established in "Heartpeace Hills No. 2" plat recorded in Liber 129, Page 7.

**TOPO NOTES**

Utility locations were obtained from municipal officials and records of utility companies, and no guarantee can be made to the completeness, or exactness of location.

All elevations are existing elevations as surveyed in 1992 by Reichert Surveying (survey dated 03-02-92, Job No. 92-012), Buckerfield Engineering (survey dated 03-25-88, Job No. 1-503) and as supplemented by N&F survey data.

This survey may not show all easements of record unless an updated title policy is furnished to the surveyor by the owners.

**FLOODPLAIN NOTES**

Estimated elevations are per FEMA Flood Insurance Rate Maps, Oakland County, Michigan, panel 391 & 392, community panel numbers 26125C0391F & 26125C0392F dated September 29, 2006.

**SOIL EROSION LEGEND**

--- PROPOSED SILT FENCE

**LEGEND**

MANHOLE	EXISTING SANITARY SEWER
HYDRANT	EXISTING SAN. CLEAN OUT
GATE VALVE	EXISTING WATERMAIN
MANHOLE CATCH BASIN	EXISTING STORM SEWER
EX. R. Y. CATCH BASIN	EXISTING BURIED CABLES
UTILITY POLE	OVERHEAD LINES
GUY WIRE	GUY WIRE
SIGN	LIGHT POLE
EXISTING GAS MAIN	SIGN

**SEED NOTE:**

All lawn areas designated to be seeded, shall be hydroseeded with species normally grown in Oakland County, in areas subject to erosion lawn shall be sodded & staked until established. All seed shall be applied over 3" prepared topsoil, and shall be kept moist and watered daily until established.

**SOD NOTE:**

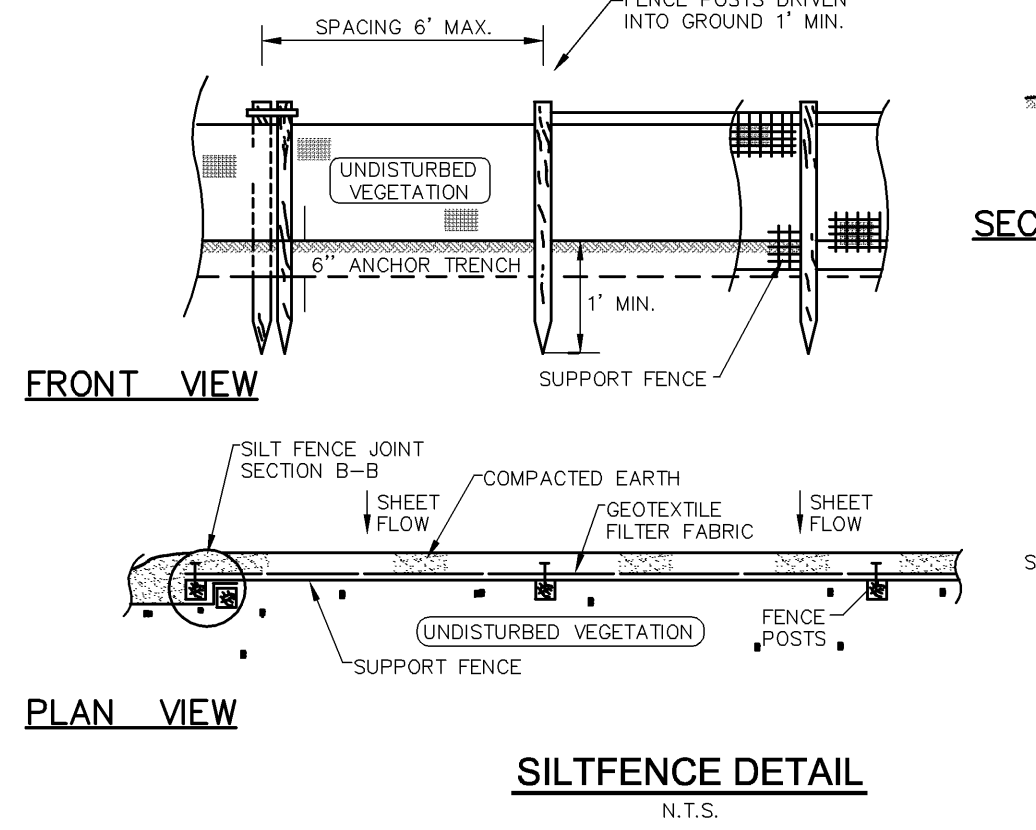
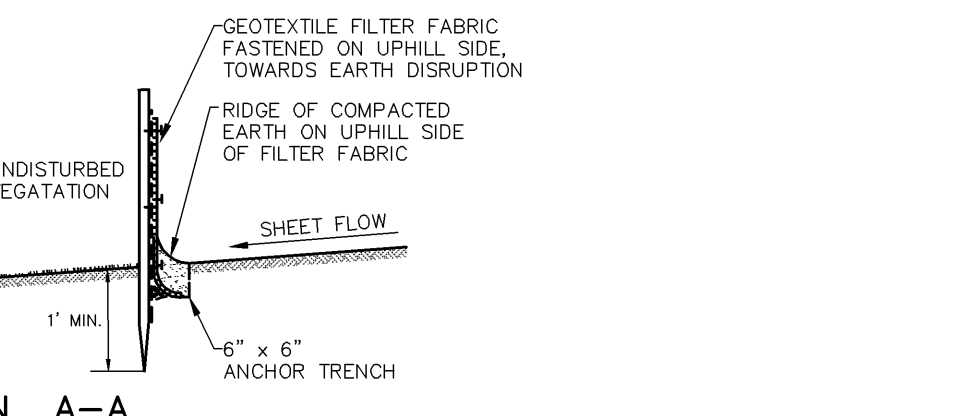
All lawn areas designated to be sodded, shall be sodded with a species normally grown in Oakland County. All sod shall be placed on 3" prepared topsoil, and watered daily until established.

**WETLAND AREA ANALYSIS**

HISTORICAL MITIGATION AREA PER REICHERT'S SURVEY DATED 03-02-92 (JOB NO. 92-012)

TOTAL MITIGATION AREA FOR BOTH PARCELS	15,592 SF. OR 0.358 ACRES
MITIGATION AREA ON THE LOT 17 & 18a PARCEL	10,627 SF. OR 0.244 ACRES

PROPOSED MITIGATION AREA ON THE LOT 17 & 18a PARCEL 10,700 SF. OR 0.246 ACRES  
PROPOSED PERMANENT SATURATION ZONE ON LOT 17 & 18a PARCEL 4,393 SF. OR 0.101 ACRES

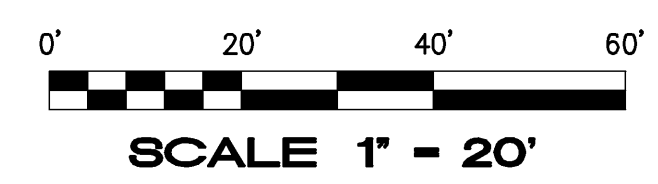


**SURFACE LEGEND**

[Hatched Pattern]	EXISTING WETLAND
[Dotted Pattern]	100-YR FLOOD PLAIN AREA PER REICHERT'S SURVEY
[Stippled Pattern]	PROPOSED WATER POOL
[Cross-hatched Pattern]	PROPOSED WETLAND SEED INSTALLATION

~ 805.60 ~  
100-YR FLOOD PLAIN ELEV. (FEMA, SEPT. 29, 2006 SARGENT CREEK, PROFILE "Q")

~ 805.40 ~  
100-YR FLOOD PLAIN ELEV. (FEMA, SEPT. 29, 2006 SARGENT CREEK, PROFILE "P")



**MISS DIG**

Three full working days before you dig, call the MISS DIG System at: 1-(800)-482-7171

PROJECT  
Lot 17 & 18a  
Heartpeace Hills No. 2

CLIENT  
Mr. Joseph Gruits, AIA  
1350 New Love Lane  
Rochester Hills, MI 48309

PROJECT LOCATION  
Part of the S.E. 1/4 of Section 9, T. 3 North, R. 11 East, City of Rochester Hills, Oakland County, Michigan

SEAL

DATE/REVISION

SHEET  
Grading & Mitigation Plan

DRAWN BY: PK  
DESIGNED BY: PK  
APPROVED BY: J. Huhta  
DATE: 06-19-07  
SCALE: 1" = 20'  
N/F JOB NO.  
C735-03  
SHEET NO. 1 of 2