KEBS, INC
Engineering • Surveying

February 9, 2015

Natalie Dean
City of Marshall
900 South Marshall Ave
Marshall, MI 49068

Re: Quality Excavators – 817 Industrial Road

Dear Ms. Dean:

Please find attached revised sets of construction plans for the Quality Excavators project per the City staff review meeting on 2/5/15.(2 large sets, 11 11x17 sets)

Revisions:

- Hatching has been added to delineate the proposed asphalt parking area
- Curbing has been added to the west, north, and se portion of the parking lot
- Gravel construction entrance hatch has been added
- Landscape plan has been revised to better fit the needs of the site

If you have any questions or need any additional information, please contact me at (517) 339-1014 or by email at ajpatrick@kebs.com.

Sincerely,

Allen J. Patrick, P.E.
KEBS Inc.

2116 Haslett Road • Haslett, MI 48840 • Phone: 517-339-1014 • Fax: 517-339-8047 • www.kebs.com

Quality Excavators, Inc.

CITY OF MARSHALL, CALHOUN COUNTY, MICHIGAN

SPECIFICATIONS

GENERAL

1. Any unstable soil (such as peat, muck, marl, soft blue clay, topsoil, etc.) which is encountered beneath proposed utilities, roadways, parking lots and structures, drives and buildings, shall be removed down to sound subsoil and backfilled with material as needed to reach finished grade. Such fill shall be compacted in 6" layers to 95% of max. density. The decision on material for bedding and backfill shall be determined by the Engineer.
2. Information on depth, size, etc., of all other underground utilities shown herein is plan information only, obtained from the utility company involved. Prior to any final designing or construction, it is recommended that all utility companies, agencies, departments, etc., involved be contacted for verification of such locations.
3. The locations, size and elevation of sewers and related structures shown hereon, were obtained through field observation. KEBS, Inc. is not responsible for information on any other sewers, drains or related structures not found and not shown hereon, that may cross, parallel, lie contiguous to or service this site.
4. For protection of underground utilities, the contractor shall dial 800-482-7171 a minimum of 72 hours prior to excavating in the vicinity of utility lines. All "MISS DIG" participating members will thus be routinely notified. This does not relieve the contractor of the responsibility of notifying utility owners who may not be a part of the "MISS DIG" alert system.
5. Footing drains and eave troughs shall not be connected to the sanitary sewer.
6. All existing roads, driveways and yards disturbed during construction shall be restored by the contractor to its original condition.
7. All sewer pipe shall be bedded with Cl. III granular material. Class III material shall be used in backfilling all sewer trenches to 1' above the sewer pipe.
8. All compaction of trenches within the roadways and parking areas shall be to 95% max dry density.
9. Contractor shall be responsible for obtaining all permits required for construction.

SANITARY SEWERS

1. All sanitary sewer construction shall comply with the Construction Standards of City of Marshall and shall be subject to their inspection and approval.
2. All pipe to be laid with the aid of laser equipment.
3. Trench width shall be maintained to a point at least 12" above the top of the pipe to insure bedding conditions
4. All sanitary leads shall be 4" PVC SDR 35, installed at a minimum slope of 1%.

STORM SEWER

1. All storm sewer construction shall comply with the requirements of the City of Marshall and shall be subject to their inspection and approval.
2. All storm sewer for roof drains or landscape drainage 10" and smaller shall be PVC SDR 35. All joints shall be "O" ring water-tight.
3. All storm sewer 12" and larger shall be reinforced concrete, C76-CL III or as designated on the plans.
4. All pipe to be laid with the aid of laser equipment.
5. All catch basins and yard drains shall have a two foot deep sump.
6. All storm sewer manholes & catch basins to be 4' diameter precast concrete structures unless otherwise needed.

WATER SYSTEM

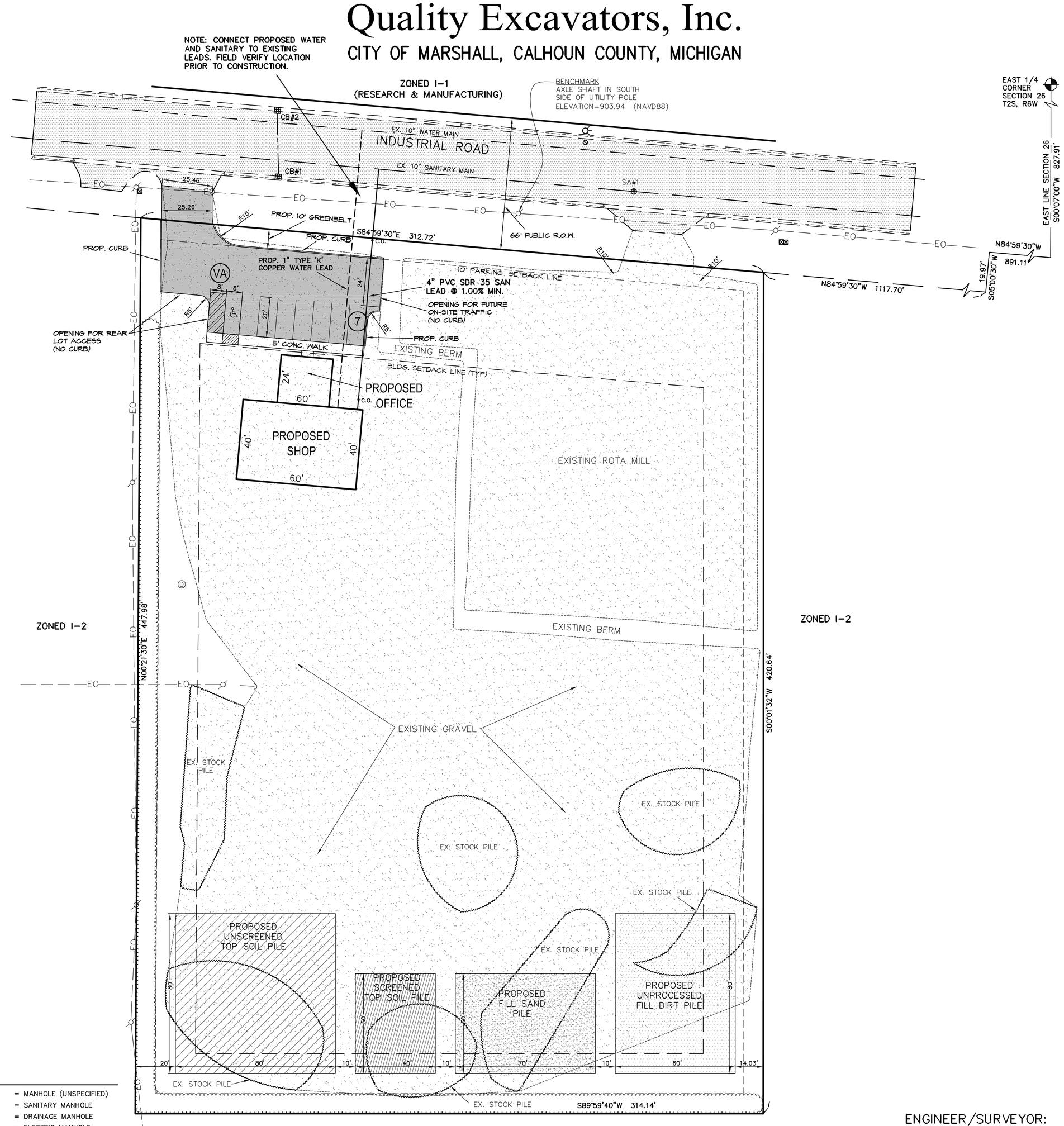
1. All water system construction shall comply with the Construction Standards of City of Marshall and shall be subject to the inspection and approval of the City.
2. All water service leads shall be Type 'K' copper with compression type fittings conforming to City of Marshall Specifications.
3. All water mains shall have a minimum of 10 feet of horizontal separation from sewers and minimum of 18 inches of vertical separation where water main and sewer lines cross.
4. All taps to existing mains shall be live taps.

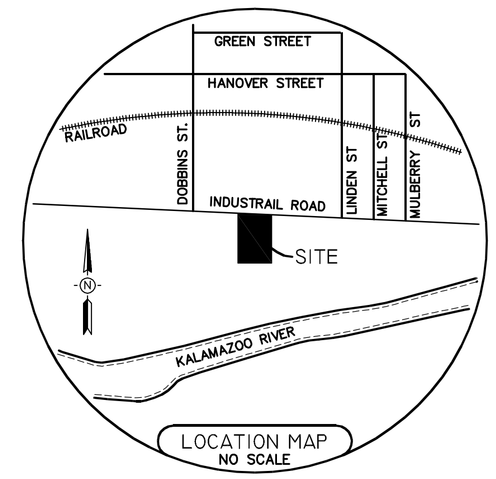
STREETS

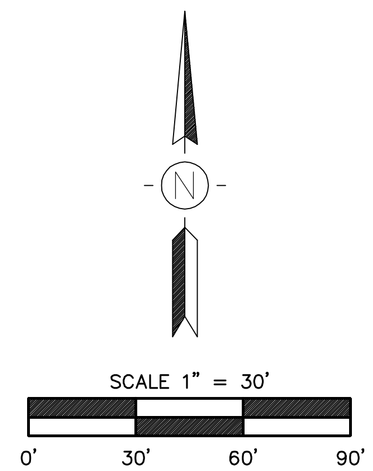
1. All public street construction and construction within an existing or proposed public R.O.W. shall comply with the requirements of the City of Marshall and be subject to their inspection and approval.
2. All disturbed areas between the curb and the road right of way shall be covered with 3" of top soil, seeded and mulched unless otherwise noted.
3. All construction within the existing Right of Way of Industrial Road shall comply with the construction specifications of the City of Marshall and shall be subject to their permit requirements.

SIDEWALK

1. Sidewalk - 5' (minimum) wide concrete 4" thick on 3" compacted sand backfill.
2. Pathways and sidewalks shall be constructed so as to promote proper positive surface drainage. Where possible the sidewalk shall be constructed 0.5' higher that the curb.







LEGAL DESCRIPTION (as provided)

Parcel of land in the Southeast 1/4 of Section 26, Town 2 South, Range 6 West, City of Marshall, Calhoun County, Michigan described as:
Commencing at the East 1/4 Post of Section 26, Town 2 South, Range 6 West, thence South 00°07' West along the East Section line 827.91 feet; thence North 84°59'30" West parallel to and 50 feet Northerly of the centerline of the Old D.T. &M. Railroad, 891.11 feet; thence South 05°00'30" West 18.97 feet; thence North 84°59'30" West parallel to said centerline of Old Railroad 1117.70 feet to the point of beginning; thence South 00°01'32" West 420.64 feet; thence North 89°59'40" West 314.14 feet; thence North 00°21'30" East 447.98 feet; thence South 84°59'30" East 312.72 feet to the point of beginning. Containg 3.12 acres, more or less, and being subject to any easements, restrictions or conditions of record.

CLIENT:
QUALITY EXCAVATORS, INC.
6547 W. BUTTERFIELD HWY.
BELLEVUE, MI. 49021
PH: (269) 763-3709
FAX: (269) 763-9506

ENGINEER/SURVEYOR:
KEBS, INC.
2116 HASLETT RD.
HASLETT, MI. 48840
PH: (517) 339-1014
FAX: (517) 339-8047

SITE DATA

PROPOSED WAREHOUSE/OFFICE
TOTAL SITE AREA = 3.12 ACRES
ZONED I-2 (GENERAL INDUSTRIAL)

BUILDING SETBACKS

FRONT - 60 FEET
SIDES - 30 FEET
REAR - 30 FEET

BUILDING/UNIT DATA

PROPOSED SHOP FLOOR AREA = 2,400 S.F.
PROPOSED OFFICE FLOOR AREA = 624 S.F.

MAXIMUM BUILDING HEIGHT = 60 FT.
PROPOSED BUILDING HEIGHT = ±25 FT TO PEAK

PARKING

REQUIRED:
5 SPACES
+3 SPACES (1 PER EMPLOYEE IN MAX. SHIFT)
8 SPACES REQUIRED & PROVIDED

UTILITIES

WATER:
CITY PUBLIC WATER MAIN
SANITARY:
CITY PUBLIC SANITARY
STORM:
ON-SITE LEACHING BASIN

NOTES

- LOCATE UTILITIES PRIOR TO INSTALLATION (COORDINATE W/ ENGINEER)
- AS-BUILT UTILITY LOCATIONS & ELEVATIONS MUST BE DELIVERED TO THE CITY ENGINEER UPON COMPLETION OF THE PROJECT

NOTE: LIGHTING TO CONSIST OF WALLPAK/S ATTACHED TO PROPOSED BUILDING

NOTE: WATER SHALL HAVE 10' HORIZONTAL SEPARATION & 18" VERTICAL SEPARATION FROM ALL SEWERS.

LEGEND

- PROPOSED WATER MAIN
- PROPOSED SANITARY SEWER
- PROPOSED STORM SEWER
- PROPOSED HYDRANT
- PROPOSED GATE VALVE
- PROPOSED SAN. M.H.
- PROPOSED STORM M.H.
- PROPOSED C.B.
- 800 PROPOSED GRADES
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- ▲T/P 800.00 PROPOSED TOP OF PAVT ELEV.
- ▲T/W 800.00 PROPOSED TOP OF WALK ELEV.
- PROPOSED S.E.S.C. KEYING SYSTEM

EX. LEGEND

- = SET 1/2" BAR WITH CAP
- = FOUND IRON AS NOTED
- = DEED LINE
- = DISTANCE NOT TO SCALE
- = FENCE
- = ASPHALT
- = CONCRETE
- = GRAVEL
- 860 = EXISTING SPOT ELEVATION
- 860 = EXISTING CONTOUR ELEVATION
- = SANITARY SEWER
- = STORM SEWER
- = WATER LINE
- G = GAS LINE
- = UNDERGROUND TELEPHONE
- C = UNDERGROUND TELEVISION
- EU = UNDERGROUND ELECTRIC
- EO = OVERHEAD WIRES
- = EDGE OF WOODS/BRUSH
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- = MANHOLE (UNSPECIFIED)
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- = VALVE
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- = ELECTRIC METER
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- = SIGN
- = POST

EX. INVENTORY:

SANITARY MANHOLE #1
TOC 902.34
FROZEN SHUT

CATCH BASIN #1
INLET EL. 901.37
12" NORTH 897.52

CATCH BASIN #2
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FULL ICE
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72 HOURS
(3 WORKING DAYS)
BEFORE YOU DIG
CALL MISS DIG
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SHEET INDEX

1. SITE & UTILITY PLAN
2. STORM, GRADING, & SOIL EROSION CONTROL PLAN
3. SESC/DETAIL SHEET

L1. LANDSCAPE PLAN (BY OTHERS)

(VA) DENOTES PROPOSED (1) VAN ACCESS B/F SPACE

(0) DENOTES PROPOSED NUMBER OF 9'x20' PARKING SPACES

0 DENOTES EX. NUMBER OF 9'x20' PARKING SPACES

SURVEY ADDRESS: 817 INDUSTRIAL RD., MARSHALL, MICHIGAN SURVEY#88673

REVISIONS	KEBS, INC. KYES ENGINEERING BRYAN LAND SURVEYS
1-30-15 SUBMITTAL	2116 HASLETT ROAD, HASLETT, MI 48840
2-6-15 CITY REV.	PH. 517-339-1014 FAX. 517-339-8047
	Marshall Office Ph. 269-781-9800
	Quality Excavators, Inc. SITE & UTILITY PLAN
	SCALE: 1"= 30' / DESIGNER: AJP / APPROVED BY: AJP
	DATE: 1-27-15 / PROJECT MGR. AJP / SHEET 1 OF 3
	AUTHORIZED BY: JOSH KARABA / JOB #: 88673

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Quality Excavators, Inc.

CITY OF MARSHALL, CALHOUN COUNTY, MICHIGAN

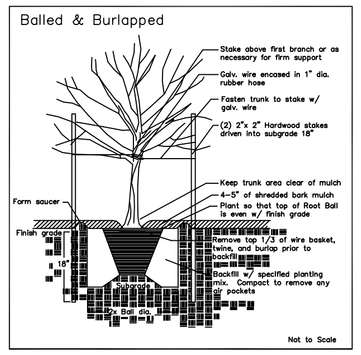
Plant List

Quantity	Key	Botanical	Common	Size
3	AB	Amelanchier X 'Autumn Brilliance'	Atumn Brilliance Serviceberry	6-7'ms
2	AS	Acer saccharum 'Green Mountain'	Green Mountain Sugar Maple	2.5"-3"
5	PO	Picea omorika	Serbian Spruce	7-8'
14	HA	Hydrangea arborescens 'Annabelle'	Annabelle Hydrangea	36"

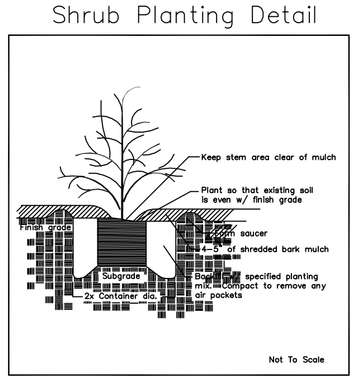
General Notes:

1. Start of work indicates acceptance of existing conditions left by other contractors. If conditions are not acceptable contact the General Contractor.
2. Contractor is responsible for verifying quantities. The quantity on the drawing is the quantity to be installed.
3. All plant material to meet American Nursery Association Standards. Landscape Contractor to guarantee plant material for 1 year from date of final inspection.
4. Landscape Contractor is responsible for finish grade and verifying positive drainage.
5. Landscape Contractor to install 6" of topsoil in all plant beds.
6. Twice ground pine bark mulch or equal will be placed around all plant material unless otherwise specified. Install bark mulch 3" deep.

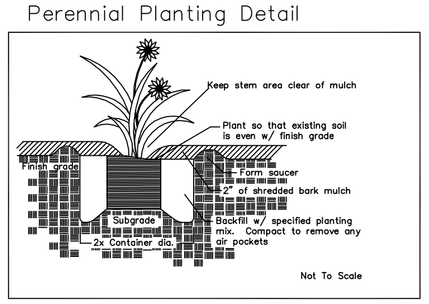
Tree Planting Detail



Shrub Planting Detail

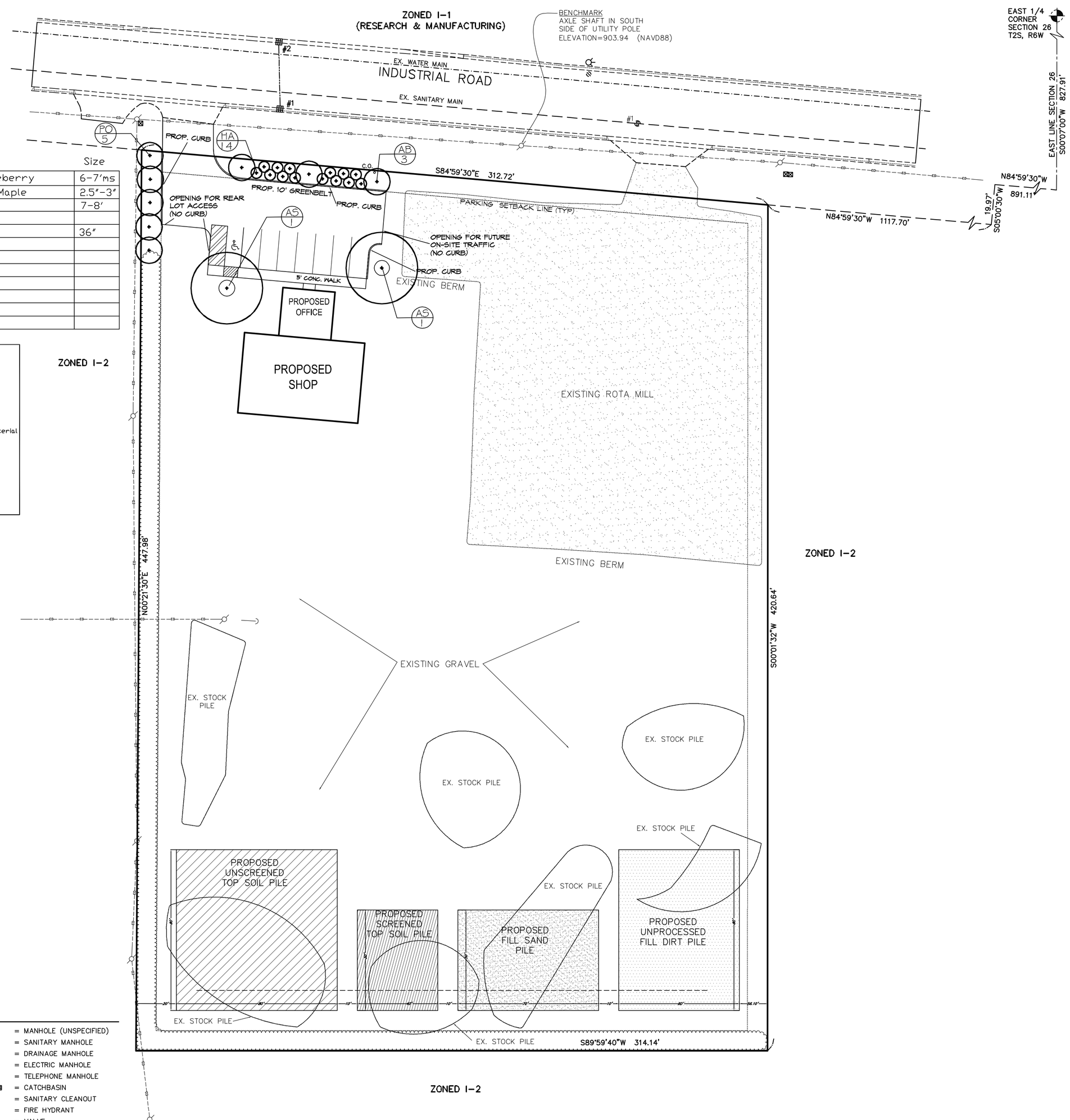


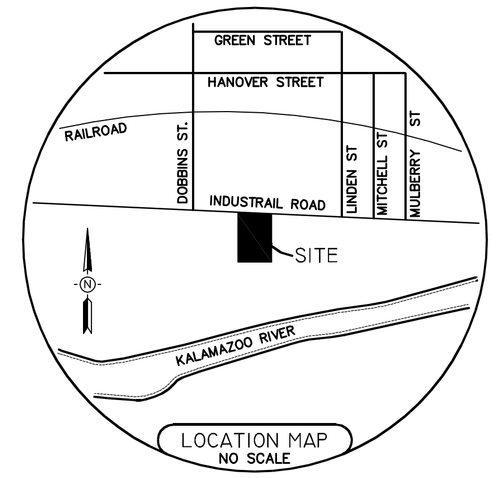
Perennial Planting Detail

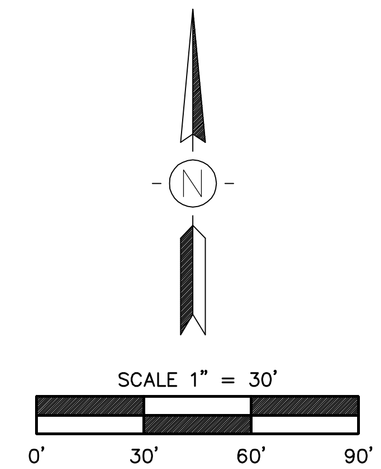


EXISTING LEGEND
= FENCE
= Light Fixture

TREE LEGEND
= Proposed Tree
= Proposed Shrub
= Proposed Orn Grass







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L. LANDSCAPE PLAN

(BY Outdoor Living, Inc.)

Outdoor Living, Inc.
2720 Alpha Access
Lansing, MI 48910-3608
Phone
(517)484-0230

Seal:
Tim Banfield ASLA
#3901000859

REVISIONS
2-6-2015

KEBS, INC. KYES ENGINEERING BRYAN LAND SURVEYS
2116 HASLETT ROAD, HASLETT, MI 48840
PH. 517-339-1014 FAX. 517-339-8047
Marshall Office
Ph. 269-781-9800

Quality Excavators, Inc.
LANDSCAPE PLAN

SCALE: 1"= 30'	DESIGNER: TIB	APPROVED BY: AJP
DATE: 1-29-15	PROJECT MGR. AJP	SHEET L1
AUTHORIZED BY: JOSH KARABA		JOB #: 88673

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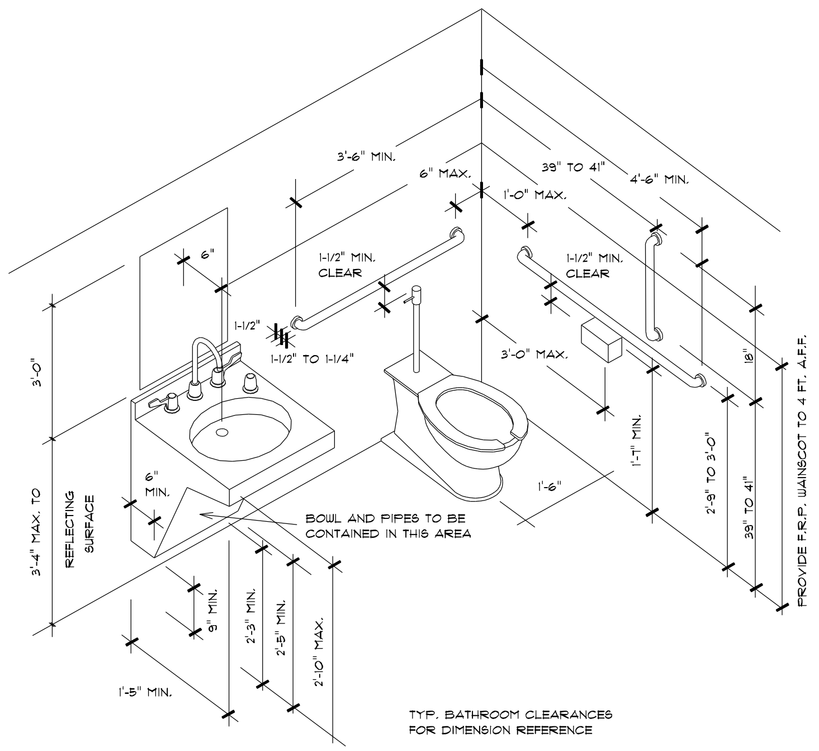
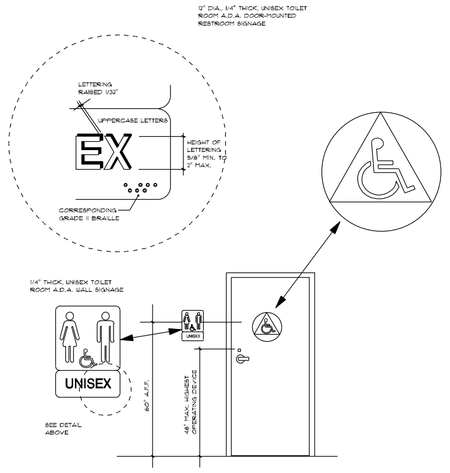
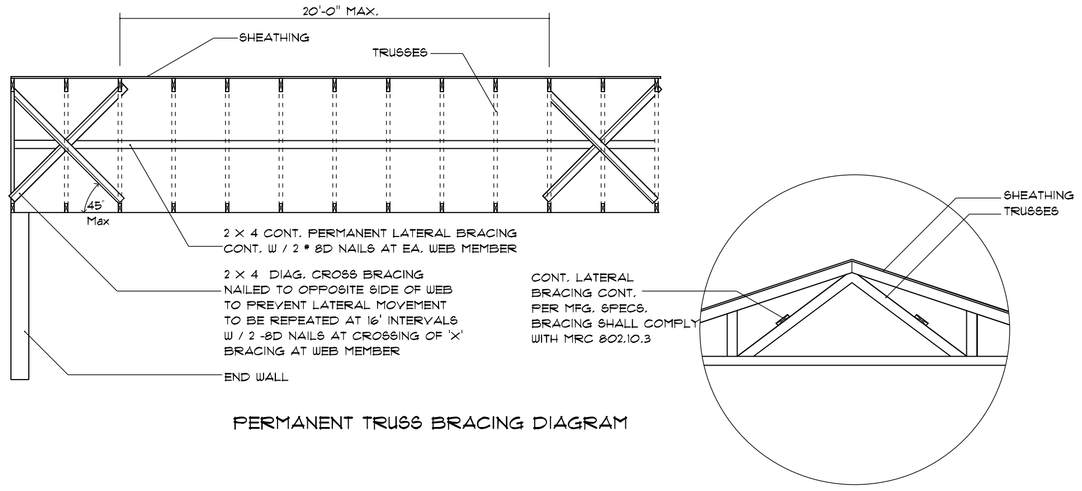


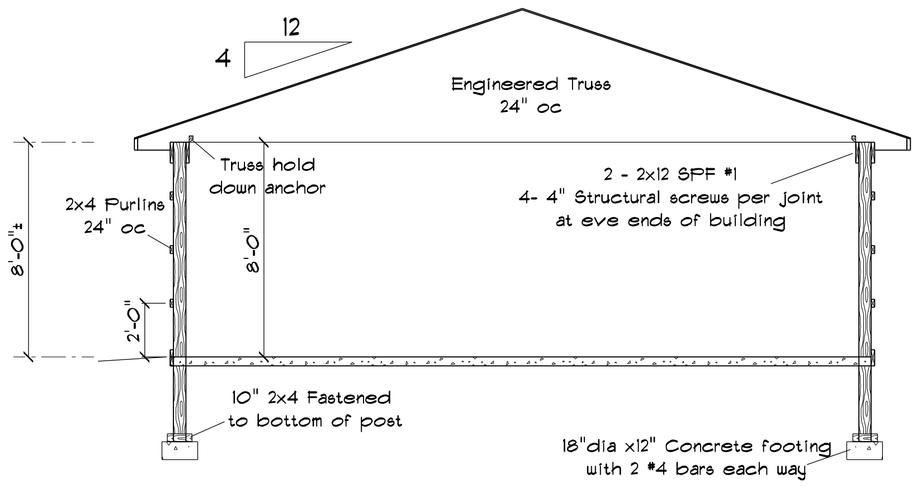
TYP. BATHROOM CLEARANCES FOR DIMENSION REFERENCE



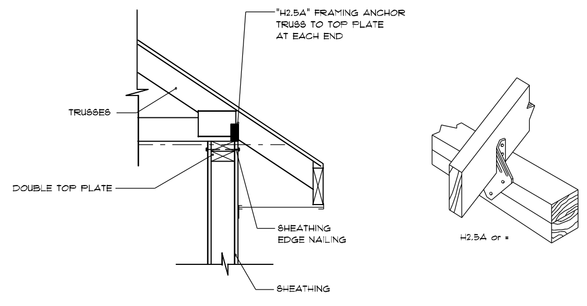
RESTROOM SIGNAGE



PERMANENT TRUSS BRACING DIAGRAM

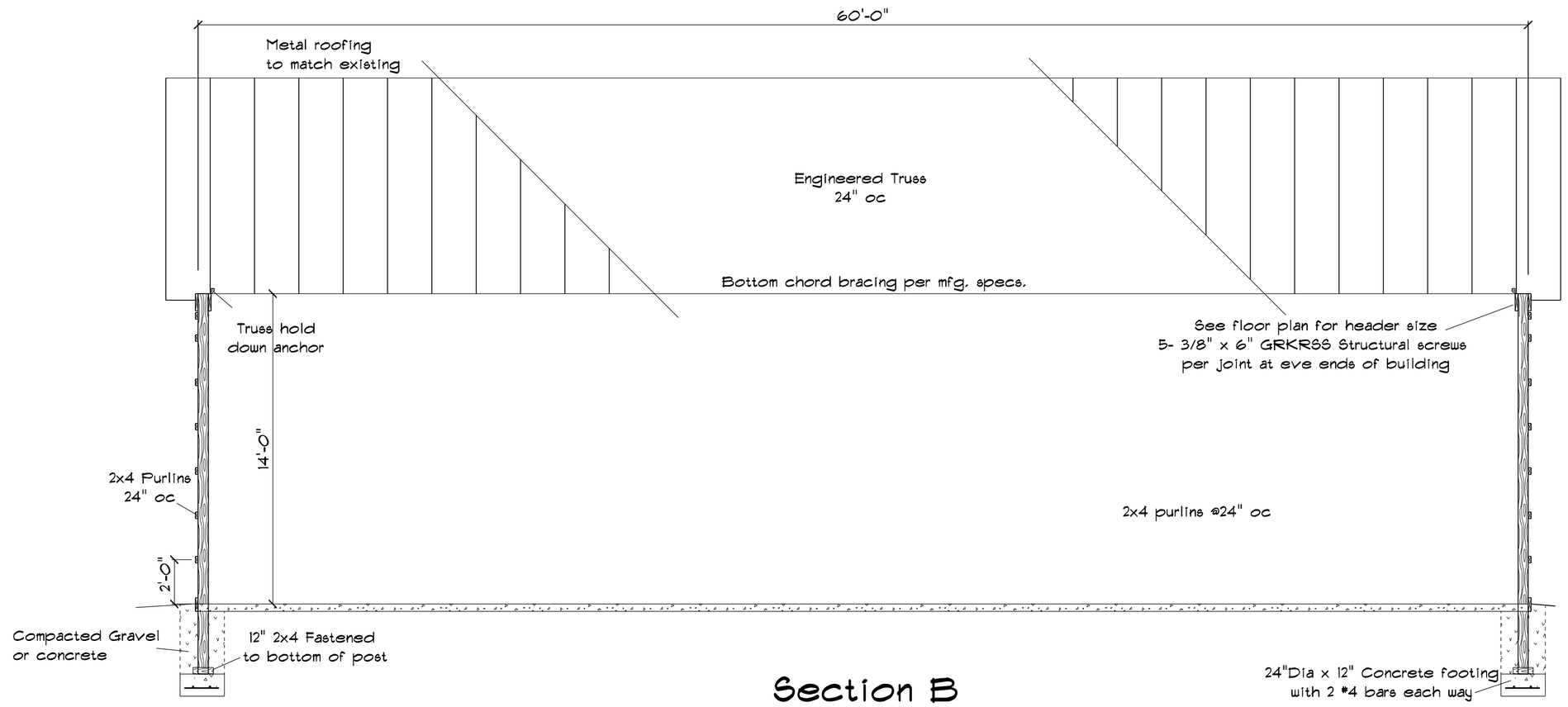


Section A

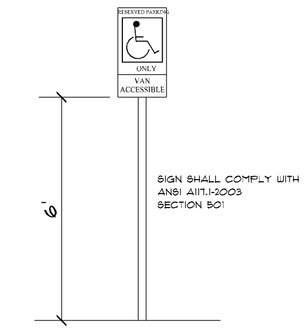


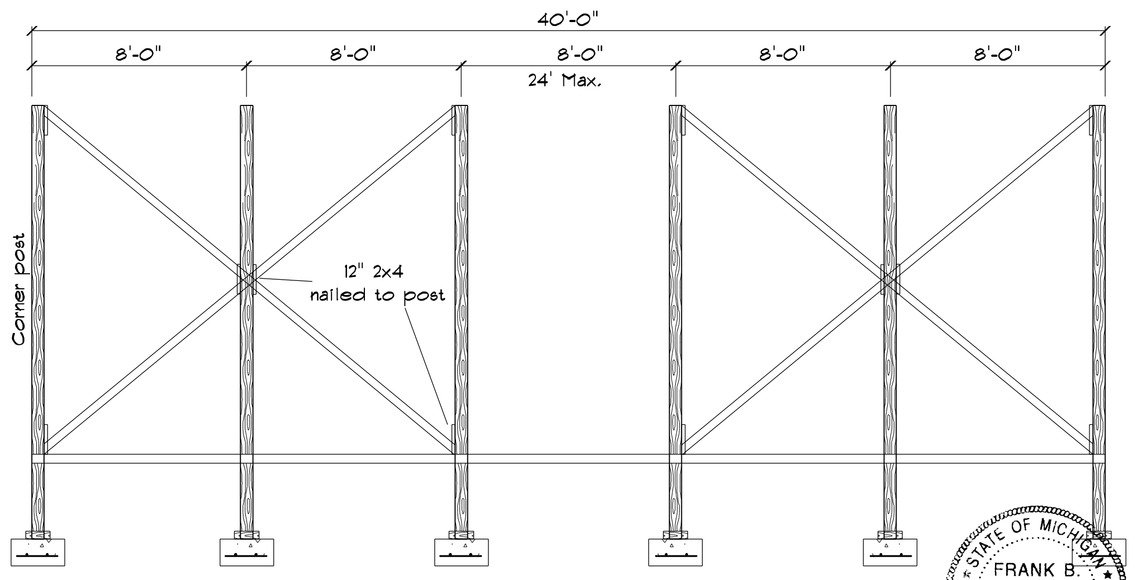
TRUSS MANUFACTURER TO VERIFY DETAILS

SHEAR TRANSFER



Section B





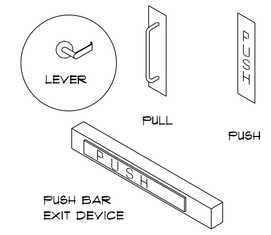
Cross Bracing at all corners and 24' spacing between bracing on side walls

TYPICAL WALL BRACING

STATE OF MICHIGAN
FRANK B. MASON III
ARCHITECT
No. 20508
REGISTERED ARCHITECT

Notes

.



ACCEPTABLE DOOR HARDWARE

Revision/Issue	Date
Roof line change	2/27/15

FRANK MASON AND ASSOCIATES
PO BOX 42
MARSHALL, MI 49068
(269) 788-7974
(269) 209 5842

Project Name:

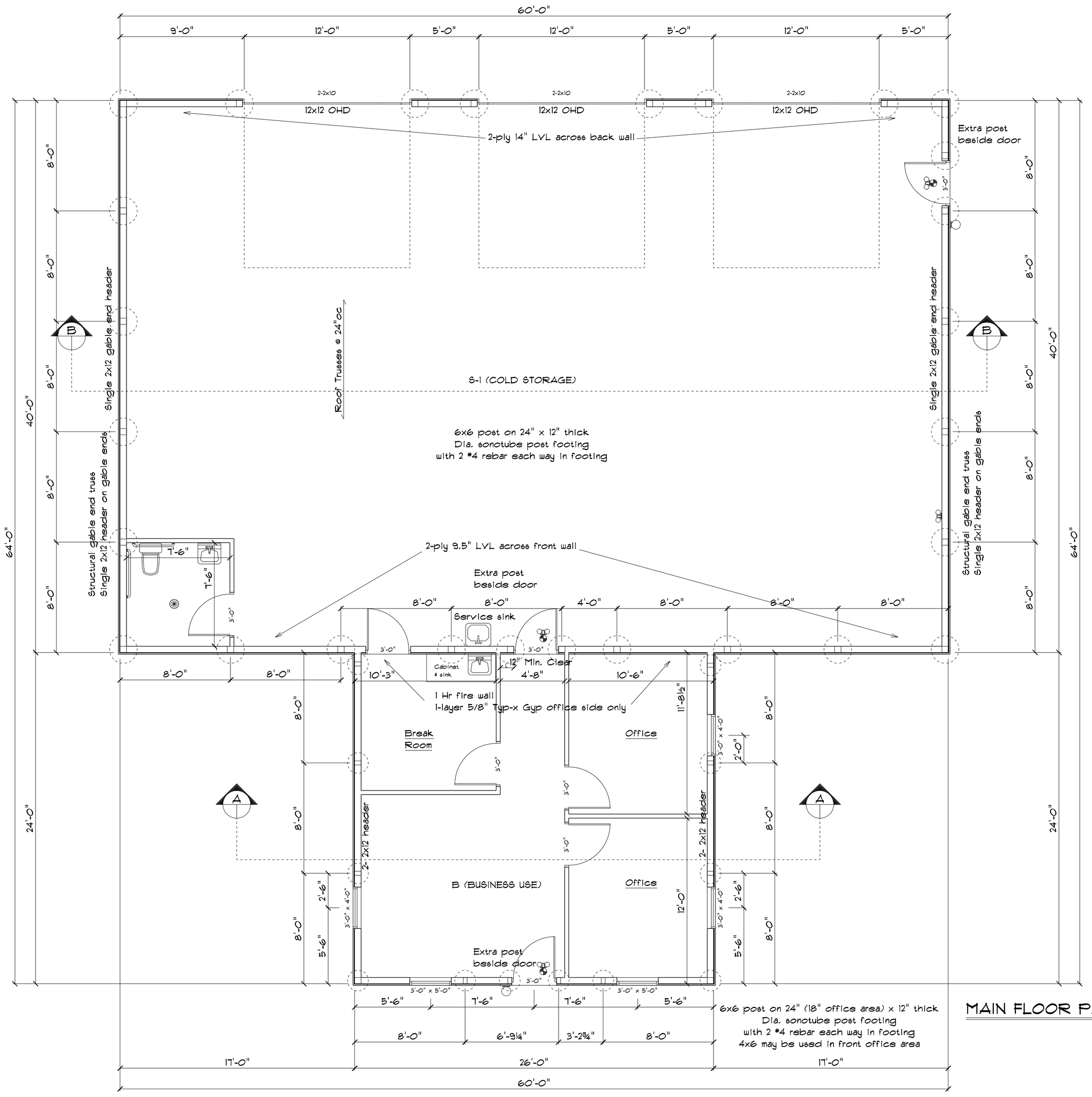
Quality Excavators

Page: SECTIONS

Date: 12/17/14

Scale: 1/4" = 1'-0"

Sheet: A-3



MAIN FLOOR PLAN

Notes

.

SYMBOL LEGEND

- EXIT SIGN / COMBO UNIT
- EMERGENCY LIGHTING
- EXTERIOR EGRESS LIGHT
- 100 CFM EXHAUST FAN VENT TO EXTERIOR

Revision/Issue	Date
Roof truss direction	2/27/15

FRANK MASON AND ASSOCIATES
PO BOX 42
MARSHALL, MI 49068
(269) 788-7974
(269) 209 5842

Project Name:

Quality Excavators

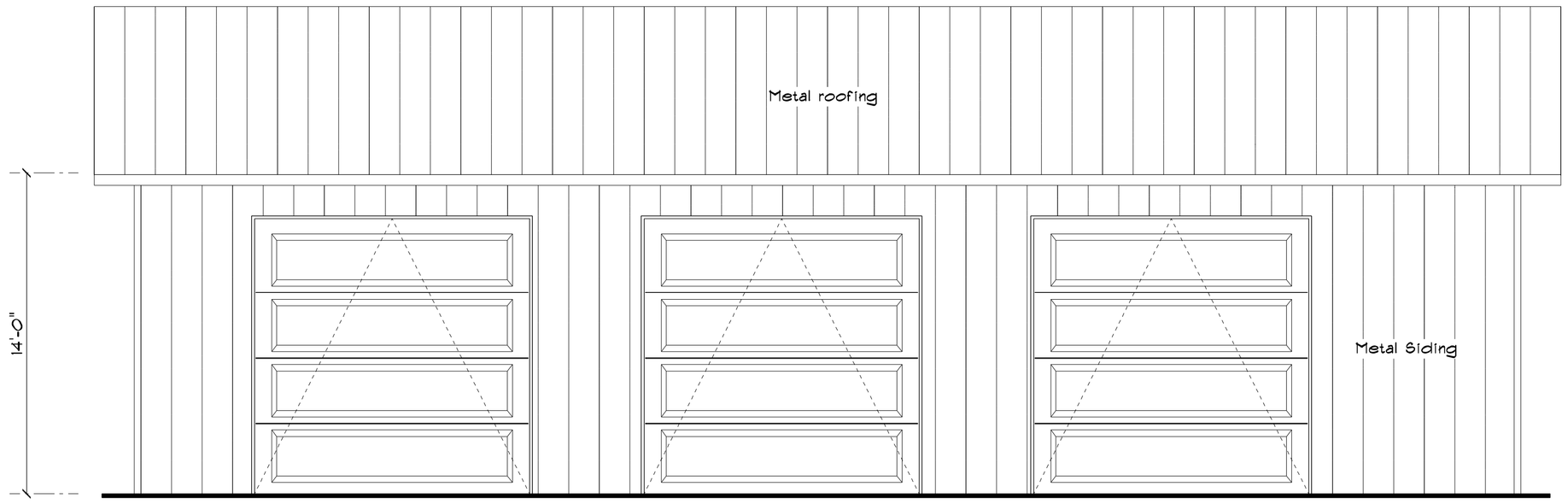
Page: FLOOR PLAN

Date: 12/17/14

Scale: 1/4" = 1'-0"

Sheet: A-2

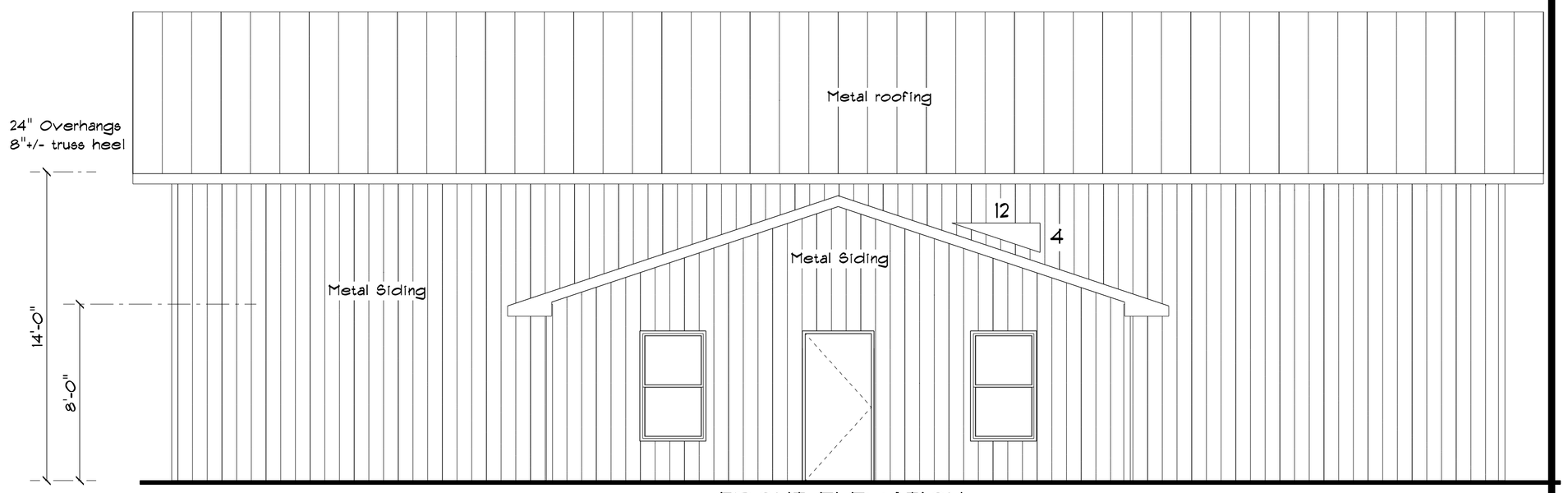
STATE OF MICHIGAN
FRANK B. MASON III
ARCHITECT
No. 20508
REGISTERED ARCHITECT



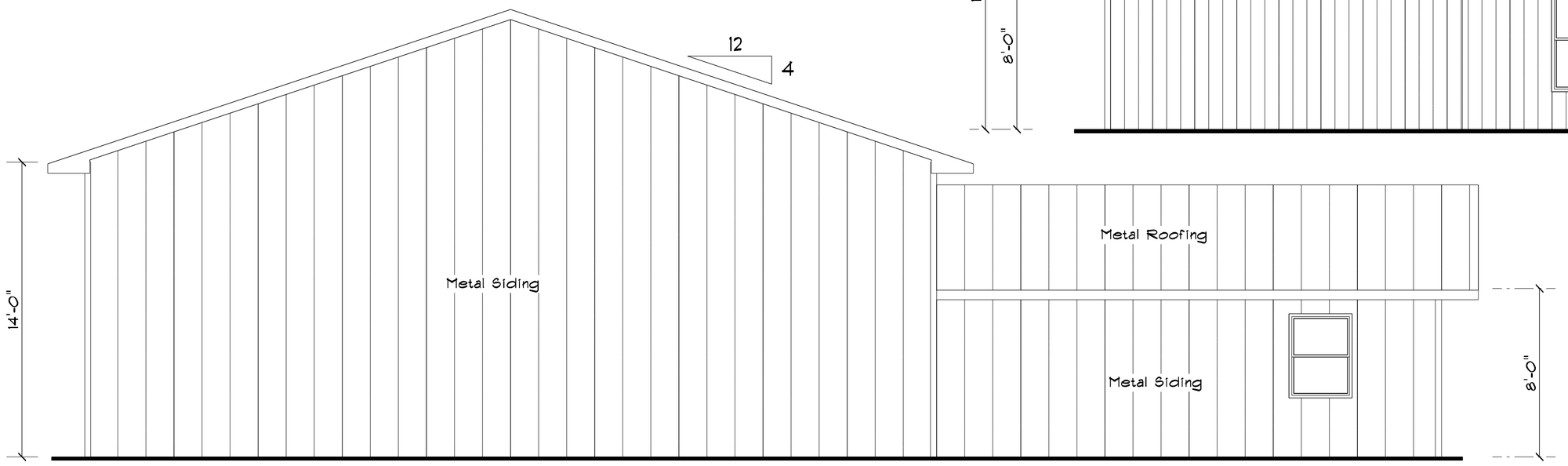
REAR ELEVATION

Mechanical Notes:
This project shall be completed as Design-Build.
All work shall comply with Michigan Mechanical Code 2012.
Manufacture's installation instructions for all equipment and appliances shall be available on the job site at all times.
Ventilation shall comply with Section 403, table 403.3
Contractor shall submit a ventilation schedule if requested.
Bathroom exhaust shall discharge to the exterior of the building through the roof or side wall and comply with Table 403.3

Plumbing Notes:
This project shall be completed as Design-Build.
All work shall comply with Michigan Plumbing Code 2012
Water hammer arrestors are required and must conform to ASSE1010, Section 604.
Provide vacuum breakers as required per Section 608.
Hot water accessible hand-washing fixtures must be tempered to meet ASSE standards, Section 607.
Trap seals shall be protected by trap primers as required per Section 1002.

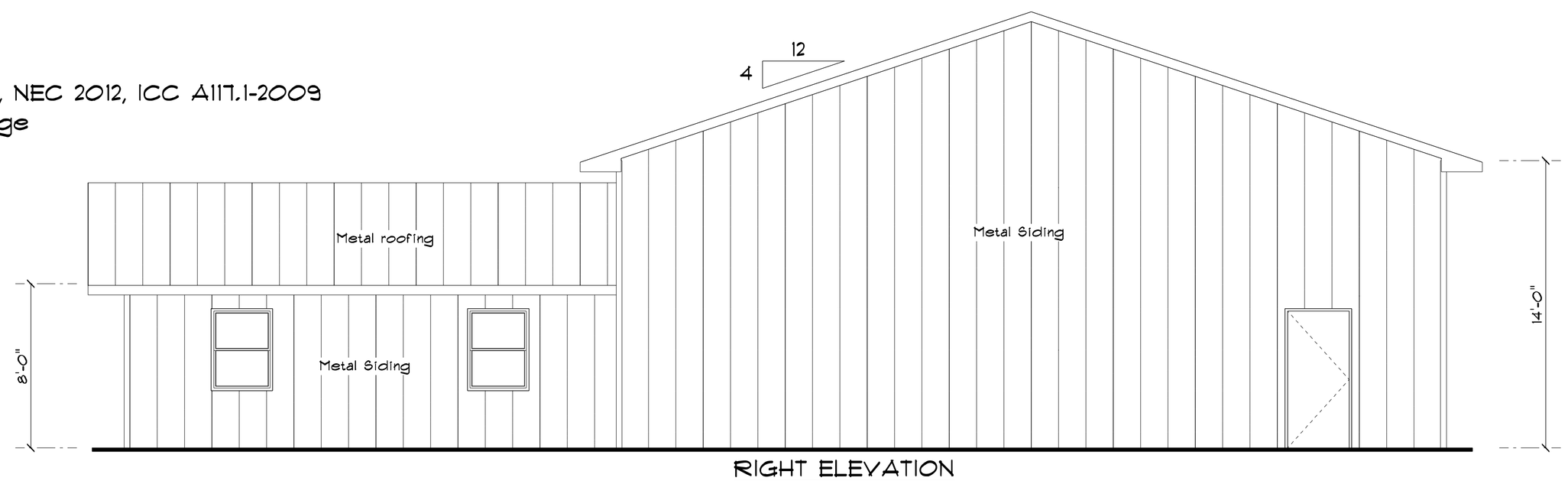


FRONT ELEVATION

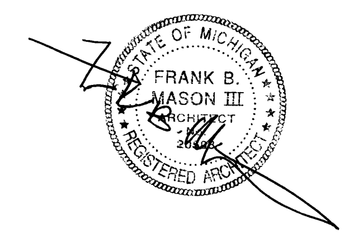


LEFT ELEVATION

Quality Excavators - Industrual Road Marshall, MI. 49068
Code info: Michigan Building Code 2012, MPC 2012, MMC 2012, NEC 2012, ICC A117.1-2009
Ventilation system must comply with MBC 406.8 for repair garage
Building Type = V-B
Building Use = B + S-1
Building Area = B = 624 sq.ft. S-1 = 2400
Occupancy load = 11 people
Firewall between space = 1 hour UL design 305
Non sprinkled building
Loading: Roof = 30-7-5 (metal roof with insulated ceiling)
Floor = Concrete
Drinking fountains not required per MPC 2012
Service sink not required per MPC 2012



RIGHT ELEVATION



Notes

.

Revision/Issue	Date
Roof line change	2/27/15

FRANK MASON AND ASSOCIATES
PO BOX 42
MARSHALL, MI 49068
(269) 788-7974
(269) 209 5842

Project Name:

Quality Excavators

Page: ELEVATIONS
Date: 12/17/14
Scale: 1/4" = 1'-0"
Sheet: A-1

E8 PERMANENT SEEDING SPECIFICATIONS

When
- To finalize stabilization of temporary seeding areas or when an area needs permanent stabilization following completion of construction. Also used when vegetative establishment can correct existing soil erosion or sedimentation problem.
- Within 5 days of final grade.

Why
- To stabilize soil and prevent or reduce soil erosion/sedimentation problems from developing.

Where
- Used on construction and earth change sites which require permanent vegetative stabilization.

How
1. Review SESC plan and construction phasing to identify areas in need of permanent vegetative stabilization.
2. Select perennial grass and ground cover for permanent cover.
3. Seed mixes vary. However, they should contain native species.
4. Seed mixes should be selected through consultation with a certified seed provider and with consideration of soil type, light, moisture, use applications, and native species content.
5. Soil tests should be performed to determine the nutrient and pH levels in the soil. The pH may need to be adjusted to between 6.5 and 7.0.
6. Prepare a 3–5" deep seedbed, with the top 3–4" consisting of topsoil.
7. Slopes steeper than 1:3 should be roughened.
8. Apply seed as soon as possible after seedbed preparation. Seed may be broadcast by hand, hydroseeding, or by using mechanical drills.
9. Mulch immediately after seeding.
10. Dormant seed mixes are for use after the growing season, using seed which lies dormant in the winter and begins growing as soon as site conditions become favorable.

STANDARD SYMBOL

MICHIGAN DEPARTMENT OF MANAGEMENT AND BUDGET

PERMANENT SEEDING SPECIFICATIONS E8

How (cont.)
11. Protect seeded areas from pedestrian or vehicular traffic.
12. Divert concentrated flows away from the seeded area until vegetation is established.

Maintenance
- Inspect weekly and within 24 hours following each rain event in the first few months following installation to be sure seed has germinated and permanent vegetative cover is being established.
- Add supplemental seed as necessary.

Limitations
- Seeds need adequate time to establish.
- May not be appropriate in areas with frequent traffic.
- Seeded areas may require irrigation during dry periods.
- Seeding success is site specific, consider mulching or sodding when necessary.

PERMANENT SEEDING SPECIFICATION
SEED ALL DISTRUBED AREAS WITH THE FOLLOWING SEED MIXTURE OR APPROVED EQUAL.
MICHIGAN GREEN – 15% BLUEGRASS, 40% FESCUE, 45% RYEGRASS
APPLY AT A RATE OF 5 LBS./1000 SF

–APPLY SILT STOP OR APPROVED TACKIFIER TO SEED MIX.

MICHIGAN DEPARTMENT OF MANAGEMENT AND BUDGET

E8 PERMANENT SEEDING

Planting Zones:	Lower Peninsula (South of T20N) Zone 1	Lower Peninsula (North of T20N) Zone 2	Upper Peninsula Zone 3
Seeding Window Permanent Seeding	4/15 – 10/10	5/1 – 10/1	5/1 – 9/20
Seeding Window Dormant Seeding*	11/15 – Freeze	11/01 – Freeze	11/01 – Freeze

Source: Adapted from MDOT Interim 2003 Standard Specifications for Construction

	Zone 1 Lower Peninsula (South of U.S. 10)	Zone 2 Lower Peninsula (North of U.S. 10)	Zone 3 Upper Peninsula
Seeding Dates (with irrigation or Mulch)	4/1 – 8/1	5/1 – 9/20	5/1 – 9/10
Seeding Dates (w/o irrigation or Mulch)	4/1 – 5/20 or 8/10 – 10/1	5/1 – 6/10 or 8/1 – 9/20	5/1 – 6/15 or 8/1 – 9/20
Dormant Seeding Dates*	11/1 – Freeze	10/25 – Freeze	10/25 – Freeze

Source: Adapted from USDA NRCS Technical Guide §342 (1999)

* Dormant seeding is for use in the late fall after the soil temperature remains consistently below 50°F, prior to the ground freezing. This practice is appropriate if construction on a site is completed in the fall but the seed was not planted prior to recommended seeding dates. No seed germination will take place until spring. A cool season annual grass may be added in an attempt to have some fall growth.

- Mulch must be used with dormant seed.
- Do not seed when the ground is frozen or snow covered.
- Do not use a dormant seed mix on grassed waterways.

MICHIGAN DEPARTMENT OF MANAGEMENT AND BUDGET

SILT FENCE SPECIFICATIONS S51

When
- A temporary measure for preventing sediment movement.

Why
- Used to prevent sediment suspended in runoff from leaving an earth change area.

Where
- Use adjacent to critical areas, wetlands, base of slopes, and watercourses.

How
1. Install parallel to a contour.
2. The silt fence should be made of woven geotextile fabric.
3. Silt fence should accomodate no more than 1/2 to 1 acre of drainage per 100' of fence and on slopes less than 1:2 (v:h).
4. Dig a 6" trench along the area where the fence is to be installed.
5. Place 6" of the silt fence bottom flap into the trench.
6. Backfill the trench with soil and compact the soil on both sides. Create a small ridge on the up–slope side of the fence.
7. Install wooden stakes 6 – 10' apart and drive into the ground a minimum of 12".
8. Staple the geotextile fabric to the wooden stakes.
9. Join sections of silt fence by wrapping ends together (See drawing).

Maintenance
- Inspect frequently and immediately after each storm event. Check several times during prolonged storm events. If necessary, repair immediately.
- If the sediment has reached 1/3 the height of the fence, the soil should be removed and disposed of in a stable upland site.
- The fence should be re–installed if water is seeping underneath it or if the fence has become ineffective.
- Silt fence should be removed once vegetation is established and up–slope area has stabilized.

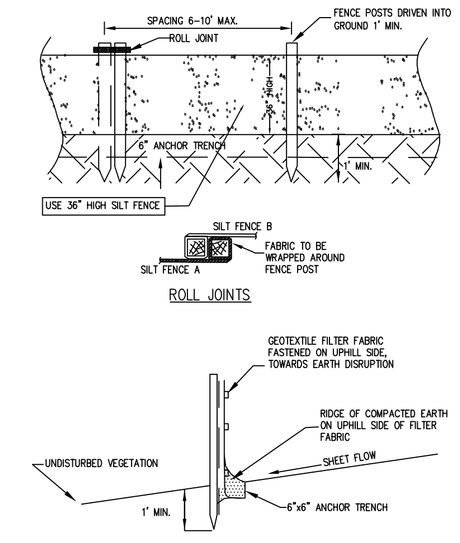
MICHIGAN DEPARTMENT OF MANAGEMENT AND BUDGET

S51 SILT FENCE SPECIFICATIONS

Limitations
- Silt fence may cause temporary ponding and could fail if too much water flows through the area.
- Do not use in areas with concentrated flows.
- Chance of failure increases if fence is installed incorrectly or if sediment accumulation is not removed.

MICHIGAN DEPARTMENT OF MANAGEMENT AND BUDGET

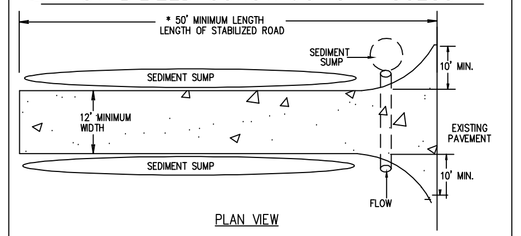
S51 SILT FENCE



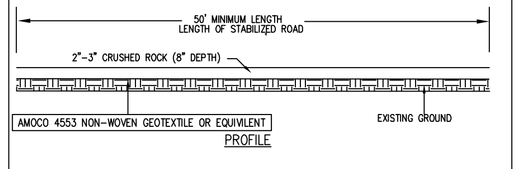
STANDARD SYMBOL

MICHIGAN DEPARTMENT OF MANAGEMENT AND BUDGET

S53 STABILIZED CONSTRUCTION ACCESS



PLAN VIEW



PROFILE

NOTES:
1. Establish stabilized construction entrance prior to the initiation of site construction activities.
2. Care should be taken to prevent material movement into adjacent wetlands/waterbodies.
3. Care should be taken to maintain existing roadside drainage via culvert installation, with sediment sump placed downflow of culvert.

STANDARD SYMBOL

MICHIGAN DEPARTMENT OF MANAGEMENT AND BUDGET

STABILIZED CONSTRUCTION ACCESS SPECIFICATIONS S53

Maintenance (cont.)
- Sediment deposited on public rights–of–way shall be removed immediately and returned to the construction site.
- If soils are such that washing of tires is required, it shall be done in a wash rock area, stabilized with stone, immediately prior to the construction access stabilized corridor.
- At the project completion, rock access road should be removed and disposed of unless utilized as subgrade for final road.

Limitations
- Effectiveness limited, sediment may be tracked onto roads requiring additional action.

MICHIGAN DEPARTMENT OF MANAGEMENT AND BUDGET

STABILIZED CONSTRUCTION ACCESS SPECIFICATIONS S53

When
- Construction traffic is expected to leave a construction site.
- Stabilization of interior construction roads is desired.

Why
- To minimize tracking of sediment onto public roadways and to minimize disturbance of vegetation.

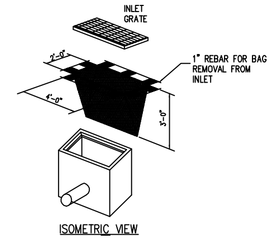
Where
- Stabilized construction entrances shall be located at every point where construction traffic enters or leaves a construction site. Vehicles leaving the site must be routed over the rock ingress/egress corridor.

How
1. Stabilized construction access road should be established at the onset of the construction activities and maintained in place for the duration of the construction project.
2. Installation of this practice should be the responsibility of the site clearing or excavating contractor.
3. Access location should be cleared of woody vegetation.
4. Non–woven geotextile fabric shall be placed over the existing ground prior to placing stone.
5. Access size should be a minimum of 50'. (30' for single residence lot).
6. Access width should be 12' minimum, flared at the existing road to provide a turning radius.
7. Crushed aggregate (2" to 3"), or reclaimed or recycled concrete equivalent, shall be placed at least 8" deep over the length and width of the ingress/egress corridor.

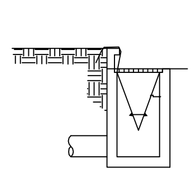
Maintenance
- Periodic inspection and needed maintainence shall be provided after each rain event.
- Stabilized entrances shall be repaired and rock added as necessary.

MICHIGAN DEPARTMENT OF MANAGEMENT AND BUDGET

S58 INLET PROTECTION – FABRIC DROP



ISOMETRIC VIEW



INSTALLATION DETAIL

STANDARD SYMBOL

MICHIGAN DEPARTMENT OF MANAGEMENT AND BUDGET

INLET PROTECTION – FABRIC DROP SPECIFICATIONS S58

When
- When sediment laden stormwater requires treatment before entering a stormwater drainage system.

Why
- To prevent sediment from entering stormwater systems.

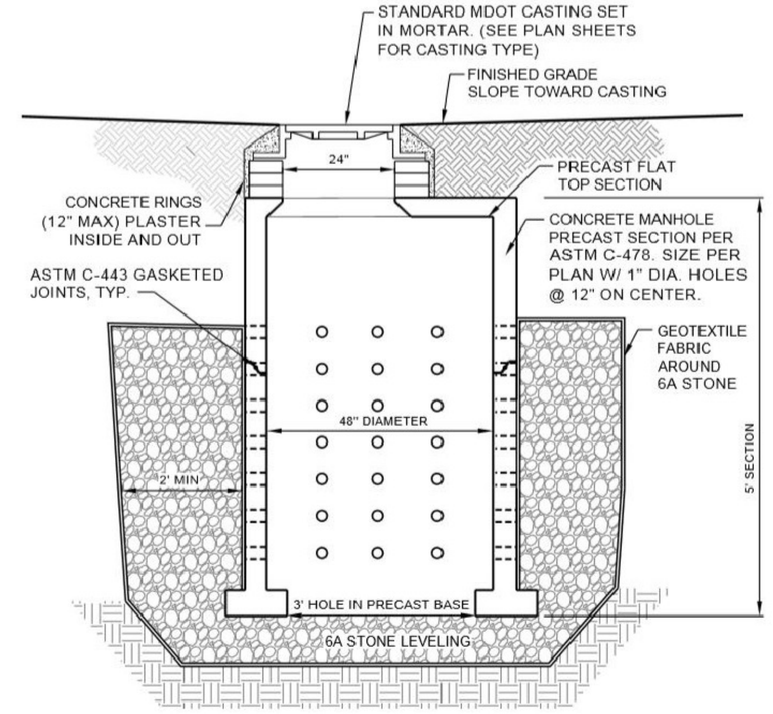
Where
- Use in or at stormwater inlets, especially at construction sites or in streets.

How
1. A filter fabric bag is hung inside the inlet, beneath the grate.
2. Replace grate, which will hold bag in place.
3. Anchor filter bag with 1" rebar for removal from inlet.
4. Flaps of bag that extend beyond the bag can be buried in soil in earth areas.

Maintenance
- Drop inlet filters should be inspected routinely and after each major rain event.
- Damaged filter bags should be replaced.
- Clean and/or replace filter bag when 1/2 full.
- Replace clogged fabric immediately.
- If needed, initiate repairs immediately upon inspection.
- Remove entire protective mechanism when upgradient areas are stabilized and streets have been swept.

Limitations
- Can only accommodate small flow quantities.
- Requires frequent maintenance.
- Ponding may occur around storm drains if filter is clogged.

MICHIGAN DEPARTMENT OF MANAGEMENT AND BUDGET

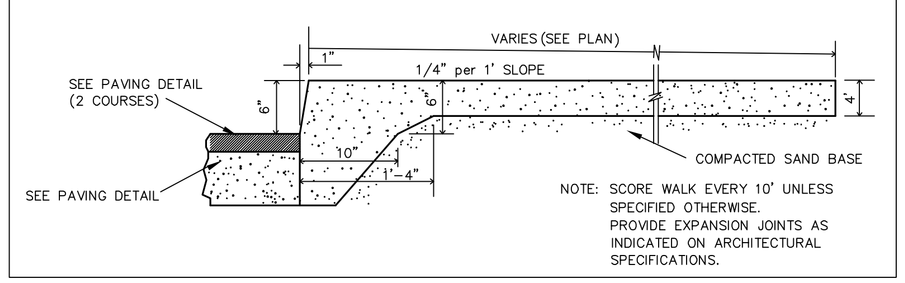


LEACHING BASIN DETAIL

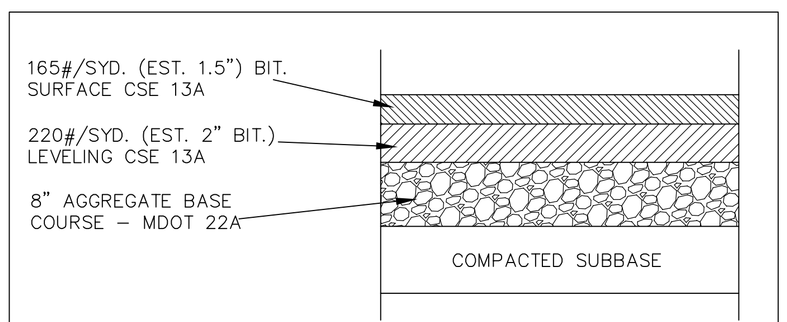
NO SCALE

INTEGRAL SIDEWALK AND CURB DETAIL

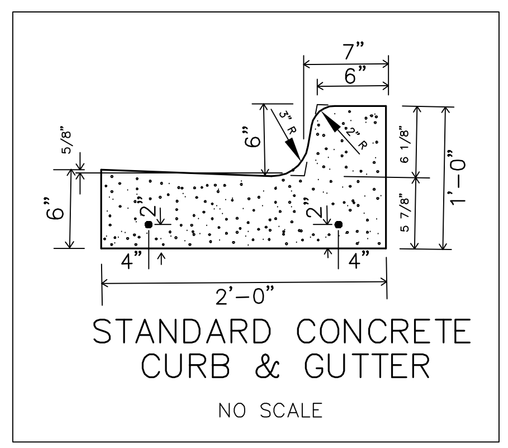
NO SCALE



NOTE: SCORE WALK EVERY 10' UNLESS SPECIFIED OTHERWISE. PROVIDE EXPANSION JOINTS AS INDICATED ON ARCHITECTURAL SPECIFICATIONS.



LIGHT DUTY ASPHALT PAVEMENT SECTION



STANDARD CONCRETE CURB & GUTTER

NO SCALE

SURVEY#88673

REVISIONS
1–30–15 SUBMITTAL
2–6–15 CITY REV

KEBS, INC. KYES ENGINEERING BRYAN LAND SURVEYS
2116 HASLETT ROAD, HASLETT, MI 48840
PH. 517–339–1014 FAX. 517–339–8047
Marshall Office Ph. 269–781–9800

Quality Excavators, Inc.
SESC & CONSTRUCTION DETAILS

SCALE: 1"= 30'	DESIGNER: AJP	APPROVED BY: AJP
DATE: 1–27–15	PROJECT MGR. AJP	SHEET 3 OF 3
AUTHORIZED BY: JOSH KARABA		JOB #: 88673

I:\88\88673\dwg\E-88673-SESC_DETAILS.dwg, 2/6/2015 2:18:16 PM, ajpatrick

Quality Excavators, Inc.

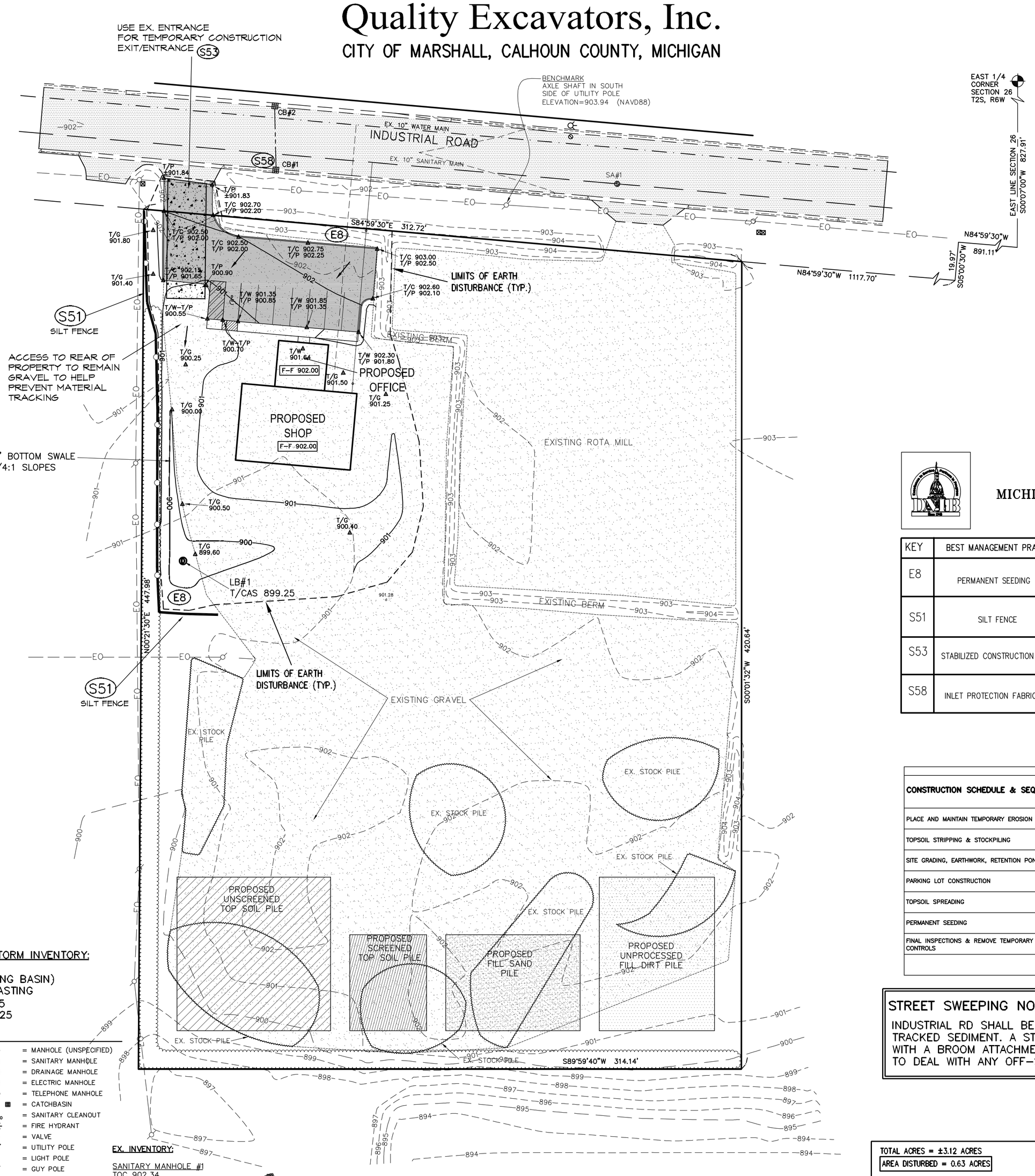
CITY OF MARSHALL, CALHOUN COUNTY, MICHIGAN

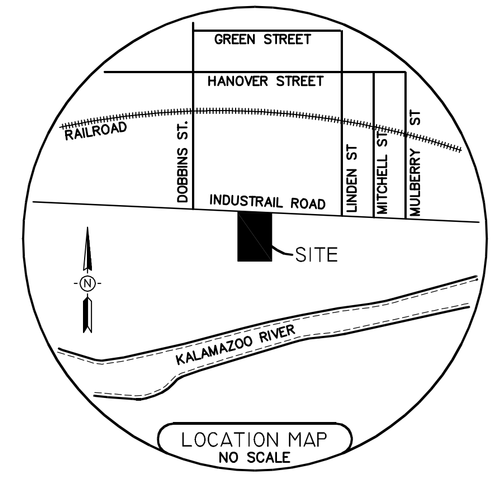
SOIL EROSION CONTROL NOTES:

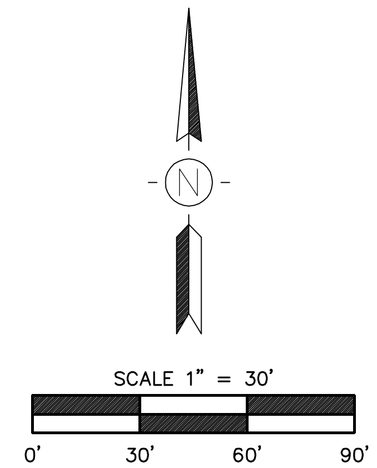
1. ALL SOIL EROSION CONTROL MEASURES SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THE CALHOUN COUNTY ROAD COMMISSION REQUIREMENTS AND PROJECT SPECIFICATIONS.
2. ANY EROSION OR SEDIMENT FROM WORK ON THIS SITE SHALL BE CONTAINED ON THE SITE AND NOT BE ALLOWED TO COLLECT ON ANY OFF-SITE AREAS, OR IN WATERWAYS; WATERWAYS INCLUDE BOTH NATURAL AND MANMADE OPEN DITCHES, STREAMS, STORM DRAINS, LAKES AND PONDS.
3. CONTRACTOR SHALL APPLY TEMPORARY EROSION AND SEDIMENTATION CONTROL MEASURES AS REQUIRED AND AS DIRECTED ON THESE PLANS. HE SHALL REMOVE TEMPORARY MEASURES AS SOON AS PERMANENT STABILIZATION OF SLOPES, DITCHES AND OTHER EARTH CHANGES HAVE BEEN ESTABLISHED.
4. A MINIMUM 50' BY 20' WIDE, 6" DEEP OF CRUSHED STONE OR CRUSHED CONCRETE HAVING AGGREGATE SIZE OF 2"-3". SHOULD THE STONE BECOME LESS EFFICIENT, IT SHALL BE REPLACED. ALL CONSTRUCTION TRAFFIC WILL USE THE CLEAN STONE EXITS.
5. DUST CONTROL WILL BE EXERCISED AT ALL TIMES WITHIN THE PROJECT BY THE CONTRACTORS. A SPRINKLING TANK TRUCK SHALL BE AVAILABLE AT ALL TIMES TO BE USED ON HAUL ROUTES OR OTHER PLACES WHERE DUST BECOMES A PROBLEM.
6. SEEDING OF EXPOSED AREAS SHALL BE COMPLETED WITHIN 5 DAYS OF FINAL GRADING.
7. ALL DISTURBED AREAS WILL RECEIVE PERMANENT EROSION CONTROL WITHIN 5 DAYS OF FINAL GRADING. AREAS NOT STABILIZED SHALL BE DIVERTED TOWARD RETENTION BASINS.
8. WEATHER AND UNFORESEEN DELAYS MAY RESULT IN EXTENSION OF CONSTRUCTION SCHEDULE.
9. SITE DEVELOPMENT CONTRACTOR SHALL INSPECT SOIL EROSION CONTROL MEASURES ON A DAILY BASIS, MORE OFTEN IF NECESSARY. ANY NEEDED REPAIRS SHALL BE PROMPTLY MADE.
10. SITE DEVELOPMENT CONTRACTOR SHALL MEET WITH SOIL EROSION ENFORCEMENT OFFICER PRIOR TO START OF WORK.

SEQUENCE OF CONSTRUCTION

1. INSTALL ALL TEMPORARY SILT FENCE PER PLAN AND AS SHOWN ON DETAIL.
2. UTILIZE EXISTING GRAVEL ENTRANCE FOR CONSTRUCTION ENTRANCE/EXIT.
3. WHILE MAINTAINING A VEGETATIVE BUFFER WHENEVER POSSIBLE, STRIP AND STOCKPILE TOPSOIL ABOVE AREAS OF PROPOSED EXCAVATION OR GRADING FOR LATER USE ON SITE. PLACE STOCKPILED TOPSOIL IN AREAS WHICH ARE NEITHER SUBJECT TO HIGH RUNOFF NOR ALONG STEEP SLOPES SEED AND MULCH STOCKPILES IMMEDIATELY TO PREVENT WIND BLOWN SEDIMENT POLLUTION AND EXCESSIVE DUST.
4. EXCAVATE FOR PROPOSED BUILDING, PARKING AND UTILITY CONSTRUCTION AS NECESSARY. DO NOT EXPOSE AREAS FAR IN ADVANCE OF THE PROPOSED CONSTRUCTION FOR THAT AREA. ROUGHEN AND SCARIFY EXPOSED SURFACES TO REDUCE RUNOFF VELOCITY AND SEDIMENTATION. MAINTAIN VEGETATION WHENEVER POSSIBLE TO PROVIDE A NATURAL BUFFER.
5. INSTALL TEMPORARY STONE FILTER BERMS PERPENDICULAR TO EXPOSED STEEP SLOPES AS NECESSARY ALONG THE EXISTING ROAD TO REDUCE RUNOFF VELOCITY AND SEDIMENTATION. USE TEMPORARY CHECK DAMS TO SLOW DOWN AND/OR DIVERT HEAVY RUNOFF WHERE NECESSARY.
6. TOPSOIL, SEED, FERTILIZE AND MULCH ALL EXPOSED AREAS AS SOON AS FEASIBLE TO PROTECT AND RESTORE PERMANENT VEGETATION.
7. WATER EXPOSED GROUND REGULARLY TO CONTROL AIRBORNE PARTICULATE MATTER.
8. THE CONTRACTOR SHALL MAINTAIN ALL TEMPORARY AND PERMANENT SOIL EROSION AND SEDIMENTATION CONTROL MEASURES THROUGHOUT THE ENTIRE CONSTRUCTION PROCESS AND UNTIL PERMANENT VEGETATION IS REESTABLISHED IN ALL EXPOSED AREAS. REMOVE ACCUMULATED SEDIMENT FROM ALL STRUCTURES.
9. THE SITE WILL BE PERIODICALLY INSPECTED BY THE CALHOUN COUNTY ROAD COMMISSION. THE CONTRACTOR SHALL BECOME FAMILIAR WITH THE RULES AND REGULATIONS OF THAT OFFICE.
10. UPON FINAL APPROVED INSPECTION OF THE COMPLETED CONSTRUCTION BY ALL REVIEWING AGENCIES, THE CONTRACTOR SHALL REMOVE ALL TEMPORARY SOIL EROSION AND SEDIMENTATION CONTROL MEASURES.







LEGAL DESCRIPTION (as provided)

Parcel of land in the Southeast 1/4 of Section 26, Town 2 South, Range 6 West, City of Marshall, Calhoun County, Michigan described as:
Commencing at the East 1/4 Post of Section 26, Town 2 South, Range 6 West, thence South 00°07' West along the East Section line 827.91 feet; thence North 84°59'30" West parallel to and 50 feet Northerly of the centerline of the Old D.T. &M. Railroad, 891.11 feet; thence South 05°00'30" West 18.97 feet; thence North 84°59'30" West parallel to said centerline of Old Railroad 1117.70 feet to the point of beginning; thence South 00°01'32" West 420.64 feet; thence South 89°59'40" West 314.14 feet; thence North 00°21'30" East 447.98 feet; thence South 84°59'30" East 312.72 feet to the point of beginning. Containg 3.12 acres, more or less, and being subject to any easements, restrictions or conditions of record.

MICHIGAN DEPARTMENT OF MANAGEMENT AND BUDGET

S-E-S-C KEYING SYSTEM

KEY	BEST MANAGEMENT PRACTICES	SYMBOL	WHERE USED
E8	PERMANENT SEEDING		Stabilization method utilized on sites where earth change has been completed (final grading attained).
S51	SILT FENCE		Use adjacent to critical areas, to prevent sediment laden sheet flow from entering these areas.
S53	STABILIZED CONSTRUCTION ACCESS		Used at every point where construction traffic enters or leaves a construction site.
S58	INLET PROTECTION FABRIC DROP		Use at stormwater inlets, especially at construction sites.

CONSTRUCTION SCHEDULE & SEQUENCING:	2015 JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
PLACE AND MAINTAIN TEMPORARY EROSION CONTROLS				X	X	X						
TOPSOIL STRIPPING & STOCKPILING				X	X							
SITE GRADING, EARTHWORK, RETENTION PONDS				X	X	X						
PARKING LOT CONSTRUCTION				X	X	X						
TOPSOIL SPREADING				X	X	X						
PERMANENT SEEDING				X	X	X						
FINAL INSPECTIONS & REMOVE TEMPORARY EROSION CONTROLS						X						

SOIL TYPE:
95B Urban Land - Kalamazoo Complex
0 to 6 percent slopes.

STREET SWEEPING NOTES:

INDUSTRIAL RD SHALL BE KEPT CLEAN AND FREE OF TRACKED SEDIMENT. A STREET SWEEPER OR A BOBCAT WITH A BROOM ATTACHMENT SHOULD BE KEPT ON SITE TO DEAL WITH ANY OFF-SITE TRACKING AS IT OCCURS.

PROPOSED STORM INVENTORY:

ST#1 (LEACHING BASIN)
EJIW 6508 CASTING
T/CAS 899.25
BOTTOM 895.25

NOTE: WATER SHALL HAVE 10' HORIZONTAL SEPARATION & 18" VERTICAL SEPARATION FROM ALL SEWERS.

LEGEND

- PROPOSED WATER MAIN
- PROPOSED SANITARY SEWER
- PROPOSED STORM SEWER
- PROPOSED HYDRANT
- PROPOSED GATE VALVE
- PROPOSED SAN. M.H.
- PROPOSED STORM M.H.
- PROPOSED C.B.
- 899.0 PROPOSED GRADES
- F-F 900.00 PROPOSED FIRST FLOOR ELEV.
- ▲T/C 900.00 PROPOSED TOP OF CURB ELEV.
- ▲T/G 900.00 PROPOSED TOP OF GROUND ELEV.
- ▲T/P 900.00 PROPOSED TOP OF PAVT ELEV.
- ▲T/W 900.00 PROPOSED TOP OF WALK ELEV.
- DENOTES S.E.S.C. KEYING SYSTEM

EX. LEGEND

- = SET 1/2" BAR WITH CAP
- = FOUND IRON AS NOTED
- = DEED LINE
- = DISTANCE NOT TO SCALE
- = FENCE
- = ASPHALT
- = CONCRETE
- = GRAVEL
- 880 = EXISTING SPOT ELEVATION
- 880 = EXISTING CONTOUR ELEVATION
- = SANITARY SEWER
- = STORM SEWER
- = WATER LINE
- = GAS LINE
- = UNDERGROUND TELEPHONE
- = UNDERGROUND TELEVISION
- = UNDERGROUND ELECTRIC
- = OVERHEAD WIRES
- = EDGE OF WOODS/BRUSH
- = DECIDUOUS TREE
- = CONIFEROUS TREE
- = BUSH
- = MANHOLE (UNSPECIFIED)
- = SANITARY MANHOLE
- = DRAINAGE MANHOLE
- = ELECTRIC MANHOLE
- = TELEPHONE MANHOLE
- = CATCHBASIN
- = SANITARY CLEANOUT
- = FIRE HYDRANT
- = VALVE
- = UTILITY POLE
- = LIGHT POLE
- = GUY POLE
- = GUY WIRE
- = UTILITY PEDESTAL
- = TRANSFORMER
- = ELECTRIC METER
- = GAS METER
- = WATER METER
- = SOIL BORING
- = SIGN
- = POST

EX. INVENTORY:

SANITARY MANHOLE #1
TOC 902.34
FROZEN SHUT

CATCH BASIN #1
INLET EL. 901.37
12" NORTH 897.52

CATCH BASIN #2
INLET EL. 901.30
FULL ICE
TOP ICE 896.25

72 HOURS (3 WORKING DAYS) BEFORE YOU DIG CALL MISS DIG 800-482-7171 (TOLL-FREE)

NOTE: ALL GRADES SHOWN ARE FOR FINAL CONSTRUCTED CONDITIONS AND CONTRACTOR IS RESPONSIBLE FOR HOLDING DOWN GRADES AS THEY OR THE DEVELOPER DEEMS NECCESSARY FOR BASEMENT SPOILS, TOPSOILS ETC...

TOTAL ACRES = ±3.12 ACRES
AREA DISTURBED = 0.63 ACRES

DENOTES DRAINAGE FLOW

- SILT FENCE (TYP.)
- LIMITS OF EARTH DISTURBANCE (TYP.)

SURVEY#88673

REVISIONS
1-30-15 SUBMITTAL
2-6-15 CITY REV.

KEBS, INC. KYES ENGINEERING BRYAN LAND SURVEYS
2116 HASLETT ROAD, HASLETT, MI 48840
PH. 517-339-1014 FAX. 517-339-8047
Marshall Office
Ph. 269-781-9800

Quality Excavators, Inc.
STORM, GRADING & SESC PLAN

SCALE: 1"= 30'	DESIGNER: AJP	APPROVED BY: AJP
DATE: 1-27-15	PROJECT MGR. AJP	SHEET 2 OF 3
AUTHORIZED BY: JOSH KARABA		JOB #: 88673

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