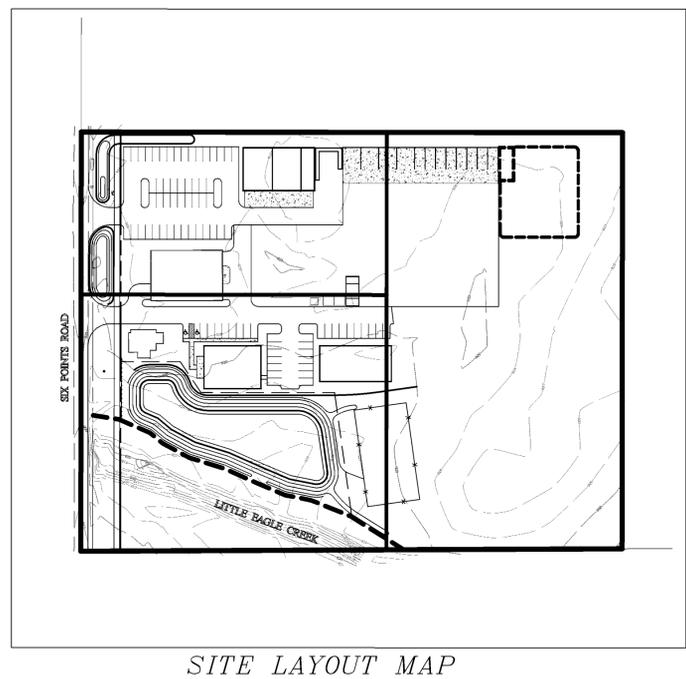
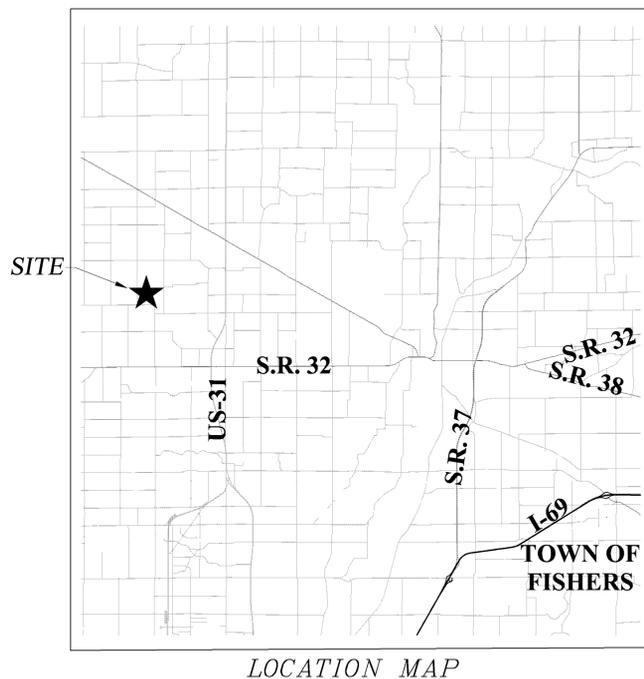


CONSTRUCTION PLANS FOR SUNDOWN GARDENS

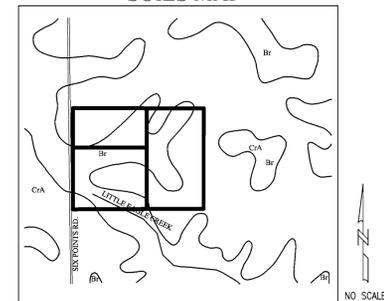
19653 SIX POINTS RD.
SHERIDAN, IN 46069

GENERAL NOTES

- 1) THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING, OR VERIFYING THAT ALL PERMITS AND APPROVALS ARE OBTAINED FROM THE RESPECTIVE CITY, COUNTY, AND STATE AGENCIES PRIOR TO STARTING CONSTRUCTION.
- 2) IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES IN THE VICINITY OF THE CONSTRUCTION AREA PRIOR TO STARTING CONSTRUCTION.
- 3) IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO NOTIFY AND COORDINATE CONSTRUCTION WITH ALL RESPECTIVE UTILITIES.
- 4) ALL QUANTITIES GIVEN ON THESE PRINTS, VERBALLY OR IN THE SCOPE OF WORK SECTION ARE ESTIMATES AND SHALL BE CONFIRMED BY THE BIDDING CONTRACTORS.
- 5) OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) STANDARDS FOR EXCAVATIONS; FINAL RULE 29 CFR PART 1926, SUBPART "P" APPLIES TO ALL EXCAVATIONS EXCEEDING FIVE (5) FEET IN DEPTH.
- 6) IN ADDITION, EXCAVATION EXCEEDING TWENTY (20) FEET IN DEPTH REQUIRE THE DESIGN OF A TRENCH SAFETY SYSTEM BY A REGISTERED PROFESSIONAL ENGINEER.
- 7) IT SHALL BE THE RESPONSIBILITY OF THE DEVELOPER AND CONTRACTOR TO MAINTAIN QUALITY CONTROL THROUGHOUT THIS PROJECT.
- 8) TEMPORARY TRAFFIC CONTROL DURING CONSTRUCTION TO CONFORM TO APPLICABLE LOCAL STANDARDS.
- 9) THE ENGINEER AND/OR OWNER DISCLAIM ANY ROLE IN THE CONSTRUCTION MEANS AND METHODS ASSOCIATED WITH THE PROJECT AS SET FORTH IN THESE PLANS.
- 10) ANY FIELD TILES ENCOUNTERED DURING EXCAVATION SHALL BE REPAIRED AND CONNECTED TO NEW STORM SEWERS AND POSITIVE DRAINAGE PRESERVED.
- 12) THE SITE DOES NOT LIE IN A SPECIAL FLOOD HAZARD AREA AS ESTABLISHED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY - NATIONAL FLOOD INSURANCE PROGRAM, WHEN PLOTTED BY SCALE ON FLOOD INSURANCE RATE MAP #18057C0110F, DATED FEB 19, 2003.
- 13) BEARINGS, DIMENSIONS AND EASEMENTS ARE SHOWN FOR REFERENCE ONLY. SEE RECORD SURVEYS & PLAT FOR EXACT INFORMATION.
- 14) THE SITE DOES NOT CONTAIN A WETLANDS AS ESTABLISHED BY THE U.S. DEPARTMENT OF THE INTERIOR FISH AND WILDLIFE SERVICE; WESTFIELD, INDIANA, NATIONAL WETLANDS INVENTORY MAP DATED 1989.
- 15) ALL PAVING WITHIN THE EXISTING AND PROPOSED CITY RIGHT OF WAY SHALL CONFORM TO THE REQUIREMENTS OF THE DEPARTMENT OF ENGINEERING. CONTRACTOR SHALL CONTACT THE DEPARTMENT OF ENGINEERING TO SCHEDULE A PER-CONSTRUCTION MEETING TO REVIEW THE DEPARTMENT'S CONSTRUCTION REQUIREMENTS, STAFF NOTIFICATION REQUIREMENTS REQUIRED INSPECTIONS FOR CERTAIN STAGES OF THE WORK AND TO REVIEW THE AUTHORITY OF THE DEPARTMENT AS IT RELATES TO WORK WITHIN THE EXISTING AND PROPOSED CITY RIGHT OF WAY.
- 16.) IF IT WILL BE NECESSARY TO RELOCATE EXISTING UTILITIES, THE EXPENSE OF SUCH RELOCATION SHALL BE THE RESPONSIBILITY OF THE DEVELOPER. ALL UTILITY POLES SHALL BE LOCATED WITHIN ONE FOOT OF THE PROPOSED RIGHT-OF-WAY.



SOILS MAP



- BROOKSTON SILTY CLAY LOAM-**
1. THIS SOIL IS DARK GRAYISH BROWN, SILTY IN TEXTURE. IT IS DEEP AND VERY POORLY DRAINED WITH MODERATE PERMEABILITY. IT HAS HIGH AVAILABLE WATER FOR PLANT GROWTH AND HIGH ORGANIC MATTER CONTENT. IT HAS COMPACT TILL STARTING AT A DEPTH OF 40 TO 60 INCHES. THE MAIN SOIL FEATURES THAT AFFECT THE URBAN DEVELOPMENT USES ARE SEASONAL HIGH WATER TABLE, MODERATE FROST ACTION, MODERATE SHRINK-SWELL POTENTIAL, MODERATE PERMEABILITY AND PORED SURFACE WATER.
 2. BECAUSE OF THESE ENGINEERING LIMITATIONS THIS SITE WILL BE CONSTRUCTED AS FOLLOWS: SUNDOWN GARDENS, BEING AN OPEN INDUSTRIAL DISTRICT WITHIN THE JURISDICTION OF THE TOWN OF WESTFIELD AND HAMILTON COUNTY WILL HAVE TO MAKE BY THE APPLICABLE ORDINANCE. SPECIAL CONSIDERATIONS WILL HAVE TO BE IMPLEMENTED TO REDUCE FAILURE OF CONSTRUCTION. ALL BUILDINGS WILL BE OF LARGE SLAB TYPE CONSTRUCTION. REINFORCEMENTS SHOULD BE APPLIED. IN CASES WHERE A HIGH WATER TABLE IS PRESENT SPECIAL FOOTINGS SHALL BE CONSTRUCTED. ALL ROADS WILL HAVE ADEQUATE SUB-BASE. THE BASE MATERIAL WILL BE REPLACED OR STRENGTHENED WITH SUITABLE MATERIAL. ALL SANITARY SEWERS SHALL BE PUBLIC AND THEREFORE NO SEPTIC SYSTEMS SHALL BE ALLOWED.
- CROSBY SALT LOAM, 0-3 PERCENT SLOPES-**
1. THIS SOIL IS DARK GRAYISH BROWN SILTY LOAM ABOUT 8" THICK, SILTY IN TEXTURE AND ON LOCATED ON SLIGHT RISES ON BROAD, UNDEULATING TILL BLANKS. IF IT DEEP AND SOMEWHAT POORLY DRAINED WITH SLOW PERMEABILITY. IT HAS HIGH AVAILABLE WATER FOR PLANT GROWTH AND MEDIUM ORGANIC MATTER CONTENT. THE SOIL HAS COMPACT TILL STARTING AT A DEPTH BETWEEN 20-40 INCHES. THE MAIN SOIL FEATURE THAT AFFECT URBAN DEVELOPMENT USES ARE SEASONAL HIGH WATER TABLE, MODERATE SHRINK-SWELL POTENTIAL, HIGH POTENTIAL FROST ACTION AND SLOW PERMEABILITY.
 2. BECAUSE OF THESE ENGINEERING LIMITATIONS THIS SITE WILL BE CONSTRUCTED AS FOLLOWS: SUNDOWN GARDENS, BEING AN OPEN INDUSTRIAL DISTRICT WITHIN THE JURISDICTION OF THE TOWN OF WESTFIELD AND HAMILTON COUNTY WILL HAVE TO MAKE BY THE APPLICABLE ORDINANCE. SPECIAL CONSIDERATIONS WILL HAVE TO BE IMPLEMENTED TO REDUCE FAILURE OF CONSTRUCTION. ALL BUILDINGS WILL BE OF LARGE SLAB TYPE CONSTRUCTION. IN CASES WHERE A HIGH WATER TABLE IS PRESENT SPECIAL FOOTINGS SHALL BE CONSTRUCTED. ALL ROADS WILL HAVE ADEQUATE SUB-BASE. THE BASE MATERIAL WILL BE REPLACED OR STRENGTHENED WITH SUITABLE MATERIAL. ALL SANITARY SEWERS SHALL BE PUBLIC AND THEREFORE NO SEPTIC SYSTEMS SHALL BE ALLOWED.

SHEET INDEX

SHEET NO.	DESCRIPTION
C001	TITLE SHEET
C100	SITE PREPARATION / DEMOLITION PLAN
C200-C203	STORMWATER POLLUTION PREVENTION PLAN
C300	DEVELOPMENT PLAN
C400-C401	STORM SEWER PLAN AND PROFILE SHEET
C500	SEPTIC SEWER DESIGN
C600-C602	DETAIL AND SPECIFICATIONS SHEET

OPERATING AUTHORITIES:

CITY OF WESTFIELD
COMMUNITY DEVELOPMENT
ATTENTION: KEVIN TODD
2728 EAST 171ST STREET
WESTFIELD, IN 46074
317-804-3172

WESTFIELD DEPT. OF PUBLIC WORKS
ATTENTION: KURT WANNINGER
2706 EAST 171ST STREET
WESTFIELD, IN 46074
317-804-3100

WESTFIELD FIRE DEPARTMENT
ATTENTION: GARRY HARLING
17535 DARTOWN ROAD
WESTFIELD IN 46074
317-896-2704

HAMILTON COUNTY HEALTH DEPT.
ATTENTION: LARRY BEARD
18030 FOUNDATION DRIVE, SUITE A
NOBLESVILLE, IN 46060-2229
317-776-8500

BRIGHTHOUSE NETWORKS
ATTENTION: JASON KIRKMAN
3030 ROOSEVELT AVENUE
INDIANAPOLIS, IN 46218
317-776-9622

HAMILTON COUNTY SURVEYOR'S OFFICE
ATTENTION: GREG HOYES
1 HAMILTON COUNTY SQUARE, STE. 146
NOBLESVILLE, IN 46060
317-632-9077

HAMILTON COUNTY HIGHWAY DEPT.
ATTENTION: DAVE LUCAS
1700 SOUTH 10TH STREET
NOBLESVILLE, IN 46060
317-773-7770

AMERITECH (TELEPHONE)
ATTENTION: STEVE ROBINSON
5858 NORTH COLLEGE AVENUE
INDIANAPOLIS, IN 46220
317-265-6801

CITIZENS GAS OF WESTFIELD
ATTENTION: RICHARD MILLER, JR.
2150 DR. MARTIN LUTHER KING DRIVE
INDIANAPOLIS, IN 46202-1162
317-696-4041

FRONTIER
ATTENTION: STEVE COSTLOW
20905 HAGUE RD.
NOBLESVILLE, IN 46062
317-984-9010

TIME WARNER TELECOM
ATTENTION: TANNY TRIPLITT
4625 WEST 86TH STREET, STE 500
INDIANAPOLIS, IN 46268
317-713-8947

DUKE ENERGY (ELECTRIC)
ATTENTION: JASON KEENAN
100 SOUTH MILL CREEK ROAD
NOBLESVILLE, IN 46060
317-776-5335

COMCAST CABLE
ATTENTION: MATT STRINGER
9750 EAST 150TH STREET, STE 1600
NOBLESVILLE, IN 46060
317-774-3384

VECTREN (GAS)
ATTENTION: CHARLES SHUPPERD
16000 ALLISONVILLE ROAD
NOBLESVILLE, IN 46060
317-776-5535

BENCHMARK

HORIZONTAL AND VERTICAL CONTROL:

COORDINATE SYSTEM:
US STATE PLANE 1983 (AT GROUND)

PROJECT DATUM:
WORLD GEODETIC SYSTEM (WGS 1984)

VERTICAL DATUM:
NAVD 88

ZONE:
INDIANA EAST 1301

GEOID MODEL:
GEOID03 (CONUS)

TEMPORARY BENCHMARKS

TBM #1003
HARRISON MON
ELEVATION - 926.29'

TBM #5025
REBAR SET
ELEVATION - 926.28'

PLANS PREPARED FOR:

SUNDOWN COMMERCIAL GROUP
13400 OLD MERIDIAN STREET
CARMEL, IN 46032
PHONE: (317)846-0620 FAX:
(317)846-4950
CONTACT PERSON: SCOTT SENEFELD

PLANS PREPARED BY

WEIHE ENGINEERS, INC.
10505 N. COLLEGE AVE.
INDIANAPOLIS, IN 46280
(317) 846-6611 PHONE
(317) 843-0546 FAX
CONTACT PERSON: JAMES E. SHIELDS, JR.



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PER INDIANA STATE LAW IC 8-1-26,
IT IS AGAINST THE LAW TO EXCAVATE
WITHOUT NOTIFYING THE UNDERGROUND
LOCATION SERVICE TWO (2) WORKING
DAYS BEFORE COMMENCING WORK.

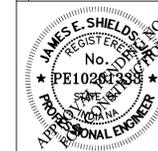
CONSTRUCTION PLANS DATED: 11/26/2012

10505 N. College Avenue
Indianapolis, Indiana 46280
weihe.net
317 | 846 - 6611
800 | 452 - 6408
317 | 843 - 0546 fax

WEIHE ENGINEERS
Land Surveying | Civil Engineering
Landscape Architecture

PROJECT NO.: W12-0055
DWG. NAME: C001-TITLE SHEET-2
DESIGNED BY: JES
DRAWN BY: MEZ
CHECKED BY: JES
DATE: 11/24/2012

REVISIONS AND ISSUES
REVISED PER COMMENTS FROM COUNTY HIGHWAY SURVEYOR'S OFFICE, AND HEALTH



JAMES E. SHIELDS, JR. P.E. 10201338

PREPARED FOR:
SUNDOWN GARDENS
SUNDOWN COMMERCIAL GROUP
TITLE SHEET

SHEET NO.
C001
PROJECT NO.
W12-0055

LOCATION: I:\2012\W12-0055\Engineering\Design\Concept\0100-120055DK.dwg
 DATE/TIME: December 21, 2012 - 10:48am
 PLOTTED BY: mllano

SIX POINTS ROAD

- LEGEND**
- AE = Aerial Utility Lines
 - AT = Aerial Traffic Signal Lines
 - BW = Buried Water Lines (assumed location)
 - BG = Buried Gas Lines
 - BA = Buried Gas Lines (assumed location)
 - BT = Buried Telephone Lines
 - = Power Pole
 - ◆ = Power Pole with Drop
 - ⊕ = Power Pole with Transformer
 - ⊕ = Power Pole with Light
 - ⊕ = Guy Anchor
 - ⊕ = Traffic Signal Manhole
 - ⊕ = Traffic Strain Pole
 - ⊕ = Gas Valve
 - ⊕ = Gas Meter
 - ⊕ = Electric Meter
 - ⊕ = Electric Control Box
 - ⊕ = Telephone Pedestal
 - ⊕ = Telephone Junction Box
 - ⊕ = Telephone Manhole
 - ⊕ = Water Meter
 - ⊕ = Water Valve
 - ⊕ = Fire Hydrant
 - ⊕ = Headwall
 - ⊕ = Mailbox
 - ⊕ = Cleanout
 - MNS = Mag Nail Set
 - IPS = 5/8" Rebar with WEIHE cap set

GENERAL DEMOLITION NOTES:

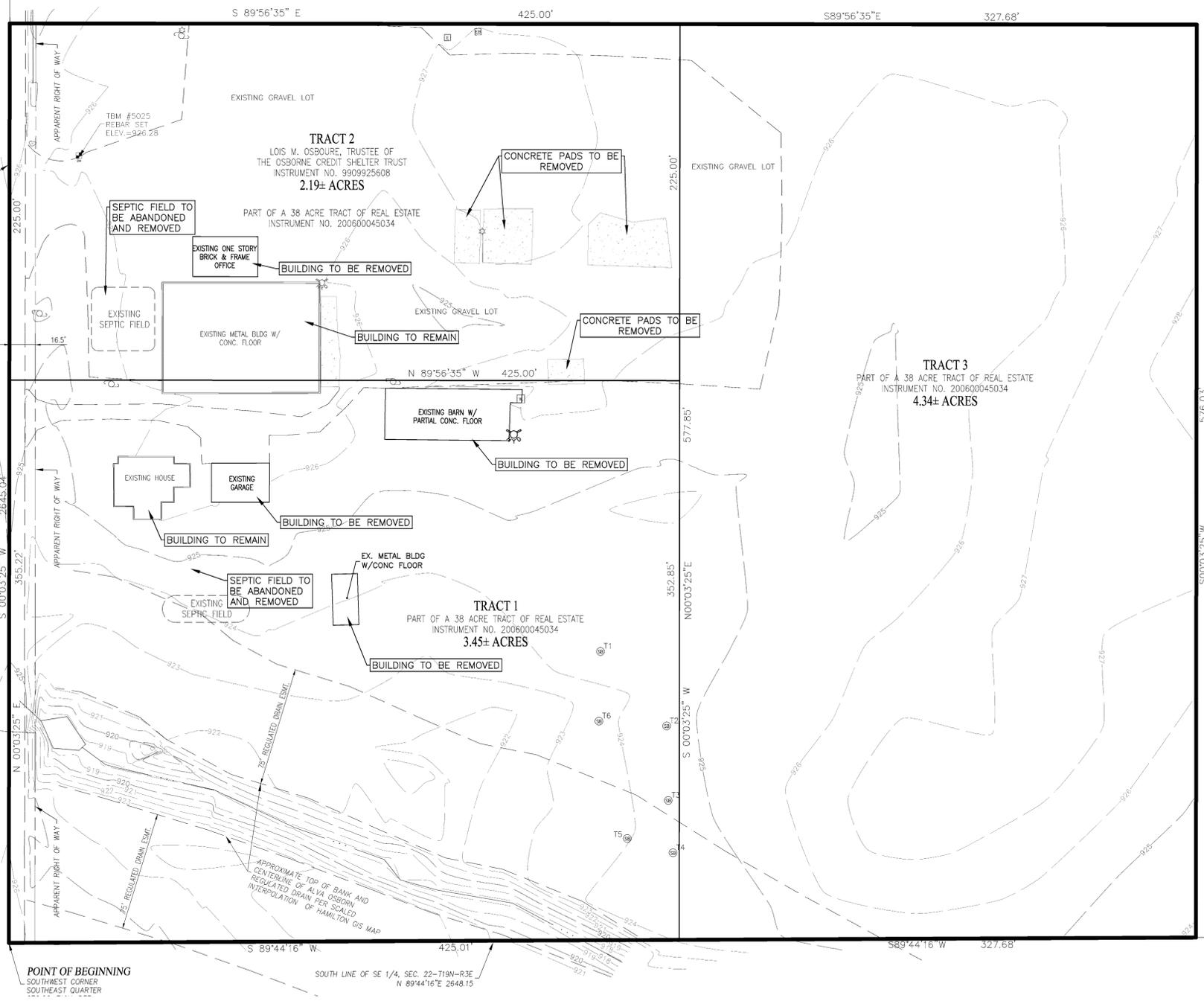
1. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO REMOVE ANY MATERIALS AND/OR STRUCTURES NOT LOCATED ON THIS SURVEY.
2. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY ALL EXISTING UTILITIES PERTAINING TO THEIR PHASE OF WORK, AND TO VERIFY WHICH UTILITIES WILL BE REMOVED BY UTILITY COMPANY. ANY AND ALL UTILITIES NOT REMOVED BY THE UTILITY COMPANY SHALL BE REMOVED BY THE CONTRACTOR.
3. UTILITIES NOTED TO BE REMOVED ARE APPROXIMATE AND SHALL BE RELOCATED, CAPPED AND/OR ABANDONED PRIOR TO CONSTRUCTION. IF A UTILITY IS OWNED BY ANYONE OTHER THAN THE DEVELOPER, THE CONTRACTOR SHALL COORDINATE ABANDONMENT OR RELOCATION WITH SAID OWNER.
4. ALL DEMOLITION MATERIAL AND SALVAGEABLE MATERIAL IS THE PROPERTY OF THE DEMOLITION CONTRACTOR AND SHALL BE PROPERLY DISPOSED OF OFFSITE.
5. ALL EXISTING BUILDINGS ON THE PROPERTY ARE TO BE REMOVED AND MAY CONTAIN ASBESTOS MATERIAL TO BE REMOVED BY THE CONTRACTOR.
6. ALL STRUCTURES SHALL BE INVESTIGATED FOR POSSIBLE BASEMENTS, OR CELLARS, AND WALLS TO BE REMOVED COMPLETELY AND TAKEN OFF SITE.
7. SLABS ON GRADE MUST BE REMOVED COMPLETELY AND TAKEN OFF SITE.
8. CAP ALL WELLS ON SITE AS SPECIFIED BY THE INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT, HAMILTON COUNTY WELL CAPPING ORDINANCE, ALL WELL TO BE INSPECTED BY WESTFIELD PUBLIC WORKS.
9. ALL EXISTING SEPTIC SYSTEMS ARE TO BE LOCATED BY CONTRACTOR ON SITE AND REMOVED COMPLETELY.
10. ALL EXISTING WALKS AND DRIVEWAYS TO BE COMPLETELY REMOVED BY CONTRACTOR AND HAULED OFFSITE.
11. THE CONTRACTOR SHALL OBTAIN ALL DEMOLITION PERMITS REQUIRED BY THE LOCAL AND STATE AGENCIES.
12. THE CONTRACTOR SHALL REMOVE ALL EXISTING FENCES LOCATED ON SITE.
13. THE OWNER GETS THE FIRST RIGHT OF SALVAGE.
14. POWER POLES TO BE REMOVED & RELOCATED PER UTILITY CO.
15. THE CONTRACTOR SHALL MAINTAIN STREETS FREE AND CLEAR OF SEDIMENT AND DEBRIS.

LAND DESCRIPTION:

Tract #1
 Description of Real Estate:
 Part of the Southeast Quarter of Section 22, Township 19 North, Range 3, East Hamilton County Indiana being described as follows:
 Beginning at the railroad spike at the Southwest corner of the Southeast Quarter of Section 22, Township 19 North, Range 3 East; thence on the West line of said Southeast Quarter North 00 degrees 03 minutes 25 seconds East (assumed bearing) 355.22 feet to the mag nail; thence South 89 degrees 56 minutes 35 seconds East 425.00 feet to a 5/8" steel rebar with a yellow cap stamped "Miller Surveying"; thence South 00 degrees 03 minutes 25 seconds West 352.85 feet to a mag nail on the South line of said Southwest Quarter; thence on said South line South 89 degrees 44 minutes 16 seconds West 425.00 feet to the point of beginning containing 3.45 acres, more or less.

Tract #2
 Description of Real Estate:
 Part of the Southeast Quarter of Section 22, Township 19 North, Range 3 East Hamilton County Indiana being described as follows:
 Commencing at the railroad spike at the Southwest corner of the Southeast Quarter of Section 22, Township 19 North, Range 3 East; thence on the West line of said Southeast Quarter North 00 degrees 03 minutes 25 seconds East (assumed bearing) 355.22 feet to the mag nail and the point of beginning of this description; thence continuing on said West line North 00 degrees 03 minutes 25 seconds East 225.00 feet; thence South 89 degrees 56 minutes 35 seconds East 425.00 feet to a 5/8" steel rebar with a yellow cap stamped "Miller Surveying"; thence South 00 degrees 03 minutes 25 seconds West 225.00 feet to a 5/8" steel rebar with a yellow cap stamped "Miller Surveying"; thence North 89 degrees 56 minutes 35 seconds West 425.00 feet to the point of beginning containing 2.19 acres, more or less.

Tract #3
 Description of Real Estate:
 Part of the Southeast Quarter Section 22, Township 19 North, Range 3 East Hamilton County Indiana being described as follows:
 Commencing at the railroad spike at the Southwest corner of the Southeast Quarter of Section 22, Township 19 North, Range 3 East; thence on the South line of said Southeast Quarter North 89 degrees 44 minutes 16 seconds East (assumed bearing) 425.01 feet to a 5/8" steel rebar with a yellow cap stamped "Miller Surveying" and the point of beginning of this description; thence parallel with the West line of said Southeast Quarter North 00 degrees 03 minutes 25 seconds East 577.85 feet; thence South 89 degrees 56 minutes 35 seconds East 327.68 feet to a 5/8" steel rebar with a yellow cap stamped "Miller Surveying"; thence parallel with West line of said Southeast Quarter South 00 degrees 03 minutes 25 seconds West 576.03 feet to a 5/8" steel rebar with a yellow cap stamped "Miller Surveying" on the South line of said Southeast Quarter; thence on said South line South 89 degrees 44 minutes 16 seconds West 327.68 feet to the point of beginning, containing 4.34 acres, more or less.



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 PER INDIANA STATE LAW IC 8-1-26,
 IT IS AGAINST THE LAW TO EXCAVATE
 WITHOUT NOTIFYING THE UNDERGROUND
 LOCATION SERVICE TWO (2) WORKING
 DAYS BEFORE COMMENCING WORK.

SCALE: 1" = 40'
 0 20 40 80

CONSTRUCTION PLANS DATED: 11/26/2012

10505 N. College Avenue
 Indianapolis, Indiana 46280
 weihe.net
 317 | 846 - 6611
 800 | 452 - 6408
 317 | 843 - 0546 fax
 ALLAN H. WEIHE, P.E., L.S. - FOUNDER

WEIHE ENGINEERS
 Land Surveying / Civil Engineering
 Landscape Architecture

PROJECT NO.:	W12-0055
DWG. NAME:	C100-1007REX-BHP-1
DESIGNED BY:	ALL
DRAWN BY:	MEZ
CHECKED BY:	JES
DATE:	11/24/2012

REVISIONS AND ISSUES

NO.	DATE	DESCRIPTION
1	11/26/12	AM

REVISED PER COMMENTS FROM COUNTY HIGHWAY SURVEYOR'S OFFICE, AND HEALTH

JAMES E. SHIELDS, JR.
 No. PE10261388
 REGISTERED PROFESSIONAL ENGINEER
 INDIANA

JAMES E. SHIELDS, JR. P.E. 10201388

PREPARED FOR:
SUNDOWN GARDENS
 SUNDOWN COMMERCIAL GROUP
 SITE PREPARATION / DEMOLITION PLAN
 A part of the Southeast Quarter of Section 22, Township 19 North, Range 3 East, Hamilton County, Indiana.

SHEET NO.
C100

PROJECT NO.
 W12-0055

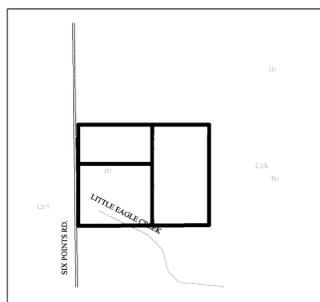
LEGEND

- BEEHIVE INLET PROTECTION - USE TRASH/DEBRIS GUARDS
- PERMANENT SEEDING
USE PLANTING CHART
- EROSION CONTROL BLANKET - USE S150BN BIO-NET AS SUPPLIED BY NORTH AMERICAN GREEN OR APPROVED EQUAL
- SILT FENCE
- SITE DISCHARGE POINT
- CONSTRUCTION LIMITS

STABILIZATION PRACTICE	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
PERMANENT SEEDING	[Symbol]											
DORMANT SEEDING	[Symbol]											
TEMPORARY SEEDING	[Symbol]											
SODDING	[Symbol]											
MULCHING	[Symbol]											

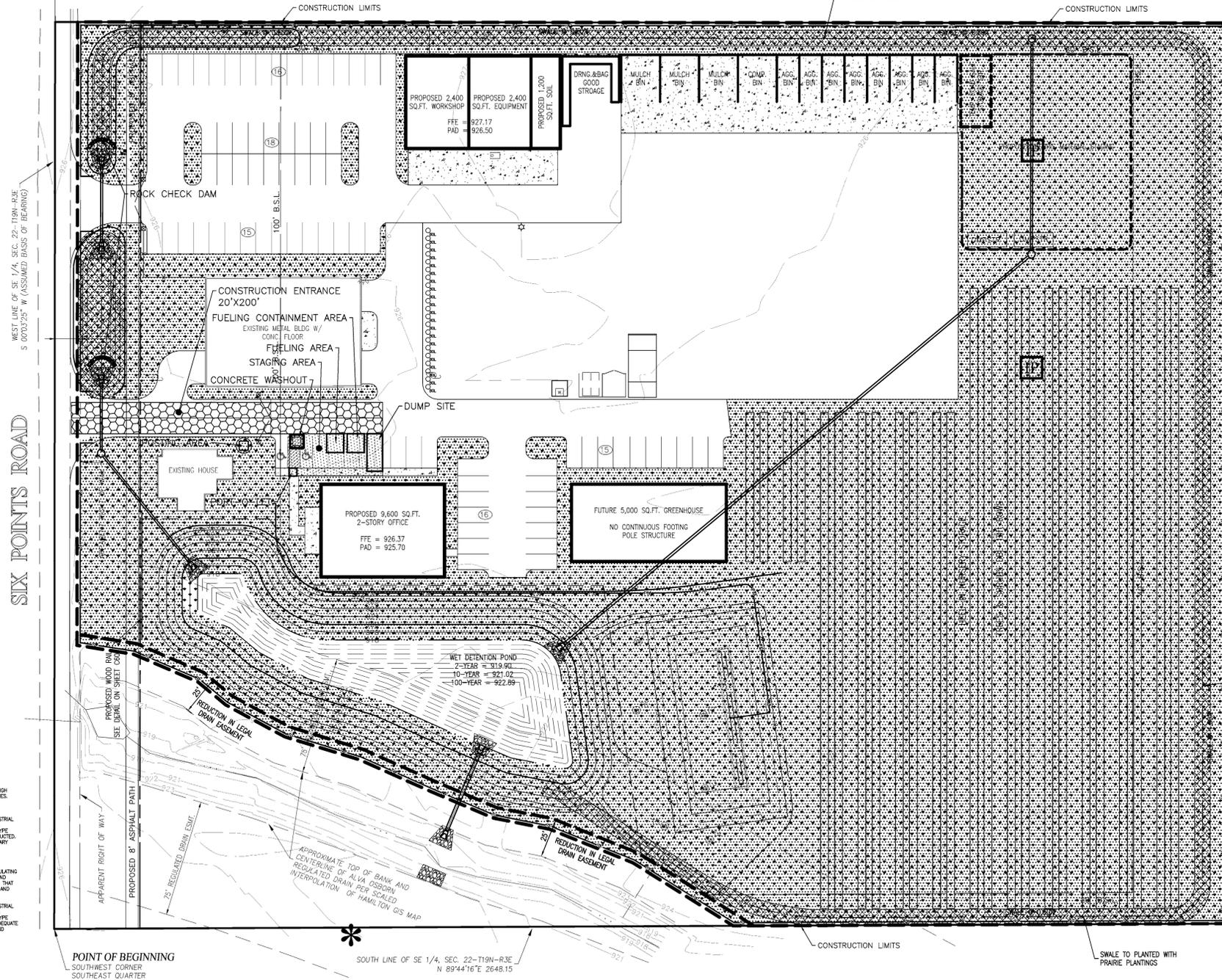
- A = KENTUCKY BLUEGRASS 40 LBS./ACRE, CREEPING RED FESCUE 40 LBS./ACRE, PLUS 2 TONS STRAW MULCH/ACRE, OR ADD ANNUAL RYEGRASS 20 LBS./ACRE.
- B = KENTUCKY BLUEGRASS 60 LBS./ACRE, CREEPING RED FESCUE 40 LBS./ACRE, PLUS 2 TONS STRAW MULCH/ACRE, OR ADD ANNUAL RYEGRASS 30 LBS./ACRE.
- C = SPRING OATS 3 BUSHEL/ACRE.
- D = WHEAT OR RYE 2 BUSHEL/ACRE.
- E = ANNUAL RYEGRASS 40 LBS./ACRE. (1 LB./1000 SQ. FT.)
- F = SOD
- G = STRAW MULCH 2 TONS/ACRE.

SEASONAL SOIL PROTECTION CHART



- BROOKSTON SILTY CLAY LOAM--**
- THIS SOIL IS DARK GRAYISH BROWN, SILTY IN TEXTURE. IT IS DEEP AND VERY POORLY DRAINED WITH MODERATE PERMEABILITY. IT HAS HIGH AVAILABLE WATER FOR PLANT GROWTH AND HIGH ORGANIC MATTER CONTENT. IT HAS COMPACT TILL STARTING AT A DEPTH OF 40 TO 60 INCHES. THE MAIN SOIL FEATURES THAT AFFECT THE URBAN DEVELOPMENT USES ARE SEASONAL HIGH WATER TABLE, HIGH POTENTIAL FROST ACTION, MODERATE SHRINK-SWELL POTENTIAL, MODERATE PERMEABILITY AND PONDING SURFACE WATER.
 - BECAUSE OF THESE ENGINEERING LIMITATIONS THIS SITE WILL BE CONSTRUCTED AS FOLLOWS: SUNDOWN GARDENS, BEING AN OPEN INDUSTRIAL DISTRICT WITHIN THE JURISDICTION OF THE TOWN OF WESTFIELD AND HAMILTON COUNTY WILL HAVE TO ABIDE BY THE APPLICABLE ORDINANCE. SPECIAL CONSIDERATIONS WILL HAVE TO BE IMPLEMENTED TO REDUCE FAILURE OF CONSTRUCTION. ALL BUILDINGS WILL BE OF LARGE SLAB TYPE CONSTRUCTION. BASEMENTS SHOULD BE AVOIDED. IN CASES WHERE A HIGH WATER TABLE IS PRESENT SPECIAL FOOTINGS SHALL BE CONSTRUCTED. ALL SODS WILL HAVE ADEQUATE SUB-BASE. THE BASE MATERIALS WILL BE REPLACED OR STRENGTHENED WITH SUITABLE MATERIAL. ALL SANITARY SEWERS SHALL BE PUBLIC AND THEREFORE NO SEPTIC SYSTEMS SHALL BE ALLOWED.
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VACANT/AGRICULTURAL FIELDS



EROSION CONTROL SPECIFICATIONS:

- THIS PLAN IS DESIGNED AS AN ATTEMPT TO PREVENT ANY AND ALL SEDIMENT FROM LEAVING THE CONSTRUCTION SITE BY WAY OF EROSION. IF EROSION OF SEDIMENT FROM THE SITE IS TAKING PLACE, THE CONTRACTOR AND/OR OWNER SHALL TAKE PREVENTATIVE ACTION IMMEDIATELY. THE ENGINEER SHALL BE CONSULTED IN THE EVENT THIS HAPPENS.
- TEMPORARY SEEDING IS TO BE APPLIED TO ANY DISTURBED AREA THAT WILL REMAIN UNALTERED IN EXCESS OF 15 DAYS.
- PERMANENT SEEDING IS TO BE APPLIED IMMEDIATELY TO AREAS THAT HAVE ACHIEVED FINAL AND FINISHED GRADE.
- PRESERVE EXISTING VEGETATION ON THE SITE WHENEVER AND WHEREVER POSSIBLE TO PREVENT TOPSOIL EROSION.
- ALL SEDIMENT CAPTURING MEASURES SHALL BE IMPLEMENTED PRIOR TO THE DISTURBANCE OF THE CONSTRUCTION AREA THEY ARE INTENDED TO SERVICE. ALL EROSION CONTROL MEASURES PROPOSED ARE TO BE PROPERLY MAINTAINED TO CONTINUE THEIR EFFECTIVENESS.
- IF GRADING OCCURS DURING THE MONTHS OF DECEMBER, JANUARY OR FEBRUARY DORMANT SEEDING PROCEDURES SHALL BE USED.
- DURING DRY WEATHER, KEEP LAWNS WATERED WITH SPRINKLERS OR OTHER APPROVED METHODS. RESEED ANY AREAS NOT GERMINATING OR DAMAGED AT INTERVALS AS MAY BE REQUIRED ACCORDING TO SEASONAL CONDITION AND/OR CONSTRUCTION ACTIVITY. WATER GRASS AND EXECUTE NECESSARY WEEDING UNTIL FULL STAND OF GRASS HAS BEEN OBTAINED.
- THE IMPLEMENTATION AND MAINTENANCE OF THE EROSION CONTROL IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND/OR OWNER.
- IT SHALL BE THE CONTRACTOR'S AND/OR OWNER'S RESPONSIBILITY TO MINIMIZE SEDIMENTATION (FROM ON-SITE CONSTRUCTION ACTIVITIES) FROM BEING DEPOSITED ONTO ADJACENT PROPERTIES AND RECEIVING STREAMS/DITCHES IN STRICT COMPLIANCE WITH "RULE 5" (327 IAC 15-5, CONSTRUCTION ACTIVITY STORM WATER RUNOFF CONTROL). IT SHALL ALSO BE THE CONTRACTOR'S AND/OR OWNER'S RESPONSIBILITY TO OBTAIN ANY APPROVALS REQUIRED FROM THE LOCAL AUTHORITY AND TO SUBMIT A COMPLETE NOTICE OF INTENT LETTER TO THE OFFICE OF WATER MANAGEMENT, INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT PRIOR TO ANY CONSTRUCTION ACTIVITY.
- FOR SEASONAL VARIATIONS - SEE SEASONAL SOIL PROTECTION CHART IN THESE PLANS.

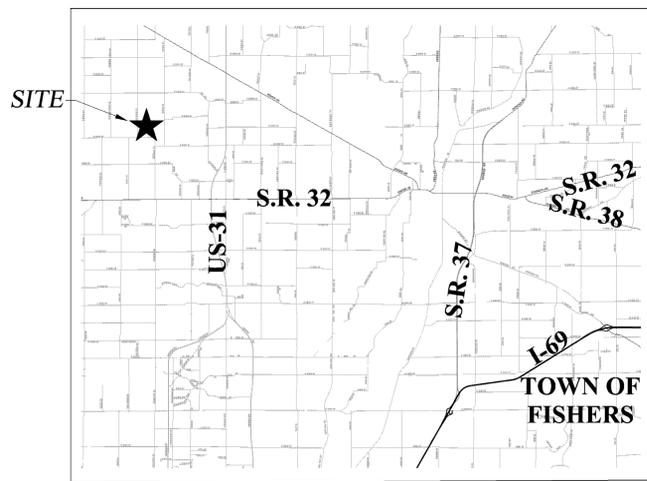
EROSION CONTROL NOTES

- ALL DISTURBED AREAS SHALL BE SODDED OR SEEDDED, EXCEPT BUILDING PAD AND LANDSCAPE BEDS. SEE LANDSCAPE PLANS FOR LOCATION OF LANDSCAPE BEDS.
- INSTALL SILT FENCE ALONG ALL PROPERTY BOUNDARIES ADJACENT TO CONSTRUCTION.
- THERE SHALL BE NO DIRT, DEBRIS OR STORAGE OF MATERIAL IN THE STREET.
- EROSION CONTROL PLAN MUST BE EXECUTED BEFORE ANY CONSTRUCTION COMMENCES.
- ALL EROSION CONTROL MATERIALS NEED TO BE APPROVED BY THE HAMILTON COUNTY SURVEYOR'S OFFICE INSPECTOR.
- TEMPORARY OR PERMANENT SEED/MATERIAL WILL BE REQUIRED WITHIN 15 DAYS OF LAND DISTURBANCE, IF THE AREA WILL REMAIN DORMANT.
- VIKING COMMANDER WAY IS NOT TO BE USED AS A CONSTRUCTION ENTRANCE.
- EROSION CONTROL PLAN MEASURES MUST BE EXECUTED BEFORE ANY CONSTRUCTION COMMENCES.
- SILT FENCE TO BE PLACED BEHIND THE CURB AS SOON AS THE CURB HAS BEEN INSTALLED. (AS SHOWN)
- ALL S.S.D. SHALL BE SMOOTH BORE, DOUBLE WALLED PIPE.

LEGAL DESCRIPTION

Part of the Southeast Quarter of Section 22, Township 19 North, Range 3 East Hamilton County being described as follows:
Beginning at the railroad spike at the Southwest Corner of the Southeast Quarter of Section 22, Township 19 North, Range 3 East; thence on the West line of said Southeast Quarter North 00 Degrees 03 Minutes 25 Seconds East (assumed basis of bearing) 580.22 feet to the North line of the Tract of Real Estate described in Instrument No. 2012-05965; thence on said North line South 89 degrees 56 minutes 35 seconds East 752.68 feet to a 5/8" rebar with a yellow cap stamped "MILLER SURVEYING"; thence Parallel with the West line of said Southeast Quarter South 00 degrees 03 minutes 25 seconds West 576.03 feet to a 5/8" steel rebar with a yellow cap stamped "MILLER SURVEYING" on the South line of the Southeast Quarter; thence on said South line South 89 degrees 44 minutes 16 seconds West 752.69 feet to the POINT OF BEGINNING, containing 9.99 acres, more or less.

DISTURBED ACREAGE = 8.6 ± AC.



CONTACT PERSON FOR EROSION CONTROL & SEDIMENT PRACTICES

SUNDOWN COMMERCIAL GROUP
13400 OLD MERIDIAN STREET
CARMEL, IN 46032
PHONE: (317)846-0620 FAX: (317)-846-4950
CONTACT PERSON: SCOTT SENEFFELD

-NOTE-

THIS PLAN INDICATES EROSION CONTROL MEASURES REQUIRED AFTER SOIL STRIPPING AND PAD BUILDING HAS TAKEN PLACE. COORDINATE WITH DEVELOPER FOR MEASURES REQUIRED UNTIL PROPERTY TURNED OVER FOR DEVELOPMENT. COORDINATE WITH SOIL CONSERVATION DISTRICT REPRESENTATIVE FOR ANY OTHER MEASURES REQUIRED DUE TO SITE CONDITIONS.

-WARNING-

THIS PLAN TO BE USED FOR EROSION CONTROL PURPOSES ONLY. ADDITIONAL EROSION CONTROL MEASURES MAY BE REQUIRED IN THE FIELD BY THE HAMILTON COUNTY SURVEYOR'S OFFICE INSPECTOR.

CONSTRUCTION PLANS DATED: 11/26/2012

10505 N. College Avenue
Indianapolis, Indiana 46280
w@he.net
317 | 846 - 6611
800 | 452 - 6408
317 | 843 - 0546 fax
ALLAN H. WEIHE, P.E., I.S. - FOUNDER

WEIHE ENGINEERS
Land Surveying | Civil Engineering
Landscape Architecture

PROJECT NO.:	W12-0055
DWG. NAME:	C20-1102000-Med-2
DESIGNED BY:	ALLAN H. WEIHE
DRAWN BY:	WIZ
CHECKED BY:	JES
DATE:	11/24/2012

REVISIONS AND ISSUES

NO.	DATE	BY	DESCRIPTION
1	11/26/12	AM	HIGHWAY SURVEYOR'S OFFICE, AND HEALTH

JAMES E. SHIELDS JR. P.E. 10201333

SUNDOWN GARDENS
SUNDOWN COMMERCIAL GROUP
STORMWATER POLLUTUIN PREVENTION PLAN
A part of the Southeast Quarter of Section 22, Township 19 North, Range 3 East, Hamilton County, Indiana.

PREPARED FOR: **SUNDOWN GARDENS**

SHEET NO. **C200**

PROJECT NO. **W12-0055**

SECTION 1 - EMERGENCY RESPONSE NUMBERS

Table with 2 columns: Agency Name and Phone Number. Includes Westfield Fire Department, Westfield Police Department, Indiana Department of Natural Resources, etc.

SECTION 2 - MATERIAL HANDLING AND SPILL PREVENTION PLAN

Material Handling and Spill Prevention Plan: In order to minimize the release of potential pollutants during construction the Contractor shall implement this material handling and spill prevention plan.

- 1. Construction Equipment
a. Fueling, lubrication and fluids: All operations involving the addition of fluids to equipment should be done in one location...
b. Equipment repair, especially when fluids must be removed from the equipment or the possibility of fluid spills is high...
c. All reusable fluid containers, such as gasoline cans, shall be inspected for leaks each time they are used...
2. Construction Materials and their Packaging
a. Erosion control measure shown on the subject project shall be implemented prior to and during construction in the proper sequencing to minimize soil erosion...

SECTION A - CONSTRUCTION PLAN ELEMENTS

- A1 PLAN INDEX - SEE BELOW
A2 11"x17" PLAT - (REDUCTION OF STORMWATER POLLUTION PREVENTION PLAN TO BE SUBMITTED WITH FULL SIZE PLAN)
A3 PROJECT NARRATIVE - THIS IS A GARDEN CENTER DEVELOPMENT IN AN INDUSTRIAL DISTRICT ON APPROXIMATELY 9.99 ACRES...
A4 VICINITY MAP - SEE LIST OF STORMWATER POLLUTION PREVENTION PLAN, SHEET C200
A5 LEGAL DESCRIPTION - SEE RIGHT OF STORMWATER POLLUTION PREVENTION PLAN, SHEET C200...
A6 LOCATION OF ALL LOTS AND PROPOSED SITE IMPROVEMENTS - SEE STORMWATER POLLUTION PREVENTION PLAN, SHEETS C200
A7 HYDROLOGIC UNIT CODE (14 DIGIT) - 05120201120060
A8 LOCATION OF ANY STATE OR FEDERAL WATER QUALITY PERMITS - NOT APPLICABLE
A9 SPECIFIC POINTS OF WATER DISCHARGE - SEE STORMWATER POLLUTION PREVENTION PLAN, SHEET C200
A10 NOTATION AND NAME OF WETLANDS, LAKES AND WATER COURSES ON AND ADJACENT TO SITE - SEE STORMWATER POLLUTION PREVENTION PLAN SHEET C200.

SECTION B - STORMWATER POLLUTION PREVENTION PLAN - CONSTRUCTION PHASE

- B1 DESCRIPTION OF POTENTIAL POLLUTANT SOURCES - POTENTIAL POLLUTANTS FROM CONSTRUCTION ACTIVITY SUCH AS ASPHALT FROM PAVING; CONCRETE FROM CURBING, SIDEWALKS, OIL, GREASE, ANTIFREEZE, GASOLINE AND DIESEL FUEL FROM CONSTRUCTION EQUIPMENT; SOIL EROSION; FERTILIZER AND PESTICIDES FROM LANDSCAPING AND TRASH SHOULD BE PROPERLY ATTENDED TO TO REDUCE THE CONTAMINANTS FROM ENTERING THE STORM SYSTEM...
B2 SEQUENCE DESCRIBING STORMWATER QUALITY MEASURE IMPLEMENTATION RELATIVE TO LAND DISTURBING ACTIVITIES -
1. A PRE-CONSTRUCTION MEETING MUST BE HELD WITH THE HAMILTON COUNTY SURVEYOR'S OFFICE DEPARTMENT BEFORE ANY EARTH DISTURBANCE CAN COMMENCE.
2. POSTING AREA - CONTRACTOR SHALL POST ALL APPROVED SWPPP DOCUMENTS AND PERMITS IN THE LOCATION DESIGNATED ON PLANS.
3. CONSTRUCTION ENTRANCE - STRIP TOPSOIL AND PLACE STONE AT ACCESS POINT AS SHOWN.
4. INSTALL PERIMETER BMP'S SUCH AS SILT FENCING AND EXISTING INLET PROTECTION.
5. EARTHWORK - STRIP TOPSOIL, BEGIN ROAD GRADING, FINISH GRADE AND SEED BASINS, SLOPES, SWALES AND MOUNDS. TEMPORARY SEED ALL DISTURBED AREAS THAT SHALL REMAIN UN-WORKED FOR MORE THAN 14 DAYS.
6. SEPTIC FIELD PROTECTION - INSTALL STORM SEWERS SYSTEM AND INLET PROTECTION AS STORM INLETS ARE COMPLETED.
7. STORM SEWER - INSTALL STORM SEWERS SYSTEM AND INLET PROTECTION AS STORM INLETS ARE COMPLETED.
8. UTILITIES - COORDINATE INSTALLATION OF WATER, GAS, TELEPHONE, ELECTRIC AND OTHER REQUIRED UTILITY LINES.
9. CLEANUP - CONTRACTOR SHALL SPOIL ALL EXCESS MATERIALS, REGRADE AND STABILIZE ALL AREAS DISTURBED BY UTILITY INSTALLATIONS AND RESEED.
10. FINISH GRADING AND PERMANENT EROSION CONTROL - FINISH GRADE AND PERMANENTLY SEED ALL PROPERTY PERIMETER AREAS.
11. PAVEMENT - INSTALL STONE, BASE COURSES AND FINISHED GRADES FOR ROADWAYS, CURBS AND ENTRY DRIVES.
12. TEMPORARY SEED ALL DISTURBED AREAS.
13. FINAL LANDSCAPING - FINAL GRADE AND INSTALL LANDSCAPING.
14. FINAL SEEDING - COMPLETE FINAL SEEDING.
15. MAINTENANCE - MAINTAIN ALL EROSION AND SEDIMENT CONTROL PRACTICES UNTIL ALL DISTURBED AREAS ARE PERMANENTLY STABILIZED.
16. AT THE END OF A WORK DAY, THE CONTRACTOR SHALL STABILIZE THE SITE BEFORE LEAVING AT THE END OF THE WORK DAY.
B3 CONSTRUCTION ENTRANCE - SEE EROSION CONTROL PLAN AND TO DETAIL IN LOWER LEFT CORNER OF PLAN
B4 SEDIMENT CONTROL PLAN FOR SHEET FLOW AREAS - SEE EROSION CONTROL PLAN
B5 SEDIMENT CONTROL PLAN FOR CONCENTRATED FLOW AREAS - EROSION CONTROL BLANKETS
B6 STORM SEWER INLET PROTECTION MEASURE LOCATIONS AND SPECS - SEE EROSION CONTROL PLAN
B7 RUNOFF CONTROL - MEASURES NOT APPLICABLE
B8 STORM WATER OUTLET PROTECTION SPECS - RIP RAP TO BE PLACED AT OUTLET LOCATION TO REDUCE VELOCITY AND EROSION.
B9 GRADE STABILIZATION STRUCTURE LOCATIONS AND SPECS - SEE EROSION CONTROL PLAN
B10 STORMWATER QUALITY CONSTRUCTION DETAILS - SEE EROSION CONTROL PLAN
B11 TEMPORARY SURFACE STABILIZATION METHOD FOR EACH SEASON - SEE SEASONAL SOIL PROTECTION CHART
B12 PERMANENT SURFACE STABILIZATION - SEE SEASONAL SOIL PROTECTION CHART
B13 MATERIAL HANDLING AND SPILL PREVENTION PLAN -
POTENTIAL POLLUTANTS FROM CONSTRUCTION ACTIVITY SUCH AS ASPHALT FROM PAVING; CONCRETE FROM CURBING, SIDEWALKS, A CONCRETE WASHOUT AREA HAS BEEN DESIGNATED OIL, GREASE, ANTIFREEZE, GASOLINE AND DIESEL FUEL FROM CONSTRUCTION EQUIPMENT. IF THERE IS A SPILL FROM ONE OF THESE, IMMEDIATE CLEANUP SHOULD OCCUR; SOIL EROSION, FERTILIZER AND PESTICIDES FROM LANDSCAPING AND TRASH SHOULD BE PROPERLY ATTENDED TO TO REDUCE THE CONTAMINANTS FROM ENTERING THE STORM SYSTEM. TRASH SHOULD BE CLEANED UP TO REDUCE CLOGGING OF STORM SYSTEMS AND REDUCE POTENTIAL BACTERIA AND/OR OTHER BIOLOGICAL AGENTS FROM ENTERING IN THE STORM SYSTEM.
SHALL MEET THE REQUIREMENTS OF IAC 2-6.1. FOLLOW MATERIAL SAFETY DATA SHEET (MSDS) GUIDELINES FOR CONTAMINANTS PRESENT ON SITE.
EX. FIRE DEPARTMENT: (317) 896-5236, POLICE DEPARTMENT: (317) 896-5236
B14 MONITORING AND MAINTENANCE GUIDELINES FOR EACH STORMWATER QUALITY MEASURE - SEE STORMWATER QUALITY CONSTRUCTION DETAILS
B15 EROSION & SEDIMENT CONTROL SPECS - N/A

SECTION C - STORMWATER POLLUTION PREVENTION PLAN - POST-CONSTRUCTION PHASE

- C1 DESCRIPTION OF POLLUTANTS AND THEIR SOURCES ASSOCIATED WITH THE PROPOSED LAND USE - POTENTIAL POLLUTANTS FROM POST-CONSTRUCTION ACTIVITY SUCH AS SANDS AND SALTS FROM SNOW REMOVAL; OIL, GREASE, ANTIFREEZE, ETC. FROM VEHICLES INCLUDING HEAVY METAL FROM BRAKE PAD WEAR SHOULD BE PROPERLY ATTENDED TO TO REDUCE THE CONTAMINANTS FROM ENTERING THE STORM SYSTEM. TRASH SHOULD BE CLEANED UP TO REDUCE CLOGGING OF STORM SYSTEMS AND REDUCE POTENTIAL BACTERIA AND/OR OTHER BIOLOGICAL AGENTS FROM ENTERING IN THE STORM SYSTEM. EXCESS FERTILIZERS AND HERBICIDES SHOULD BE AVOIDED. CLEAN UP IMMEDIATELY IF ANY IS SPILLED.
C2 SEQUENCE DESCRIBING STORMWATER QUALITY MEASURE IMPLEMENTATION - A SILT FENCE WILL BE INSTALLED BEFORE CONSTRUCTION SHALL BEGIN TO CONTROL SEDIMENTATION RUNOFF DURING CONSTRUCTION. VEGETATED SWALES WILL BE INCORPORATED AROUND THE PERIMETER TO BETTER FILTER THE ONSITE RUNOFF BEFORE IT GETS TO THE DETENTION BASIN. ROCK CHECK DAMS WILL BE INSTALLED ALONG THE VEGETATED SWALE RUNNING ALONG SIX POINTS ROAD. IN ADDITION, A WET DETENTION BASIN WILL BE INSTALLED FOR POST CONSTRUCTION WATER QUALITY MEASURES
C3 DESCRIPTION OF PROPOSED POST-CONSTRUCTION STORMWATER QUALITY MEASURES -
VEGETATED GRASS SWALES AND A WET DETENTION BASIN W/ RIPRAP INSTALLED AT OUTLET LOCATIONS.
C4 LOCATION, DIMENSIONS, SPECIFICATIONS, AND CONSTRUCTION DETAILS OF EACH STORM WATER QUALITY MEASURE - SEE EROSION CONTROL SHEET C200 & C201 FOR LOCATION, DIMENSIONS, SPECIFICATIONS AND CONSTRUCTION DETAILS FOR WATER QUALITY MEASURES.
C5 DESCRIPTION OF MAINTENANCE GUIDELINES FOR POST CONSTRUCTION STORMWATER QUALITY MEASURES - SEE ATTACHED OPERATIONS AND MAINTENANCE MANUAL.

RULE 6. SPILLS OF OIL AND OTHER OBJECTIONABLE SUBSTANCES; REPORTING, CONTAINMENT AND CLEANUP

(233-1864 AARON MOHAMOH IDEM) (REPEALED BY WATER POLLUTION CONTROL BOARD; FILED FEB 25, 1997, 1:00 P.M.; 20 IR 1734)

RULE 6.1. SPILLS; REPORTING, CONTAINMENT, AND RESPONSE

327 IAC 2-6.1-1 APPLICABILITY
AUTHORITY: IC 13-14-8-7
AFFECTED: IC 13-11-2; IC 13-18-1; IC 13-18-3; IC 13-18-8; IC 13-18-17
SEC. 1. THIS RULE APPLIES TO THE REPORTING AND CONTAINMENT OF, AND THE RESPONSE TO THOSE SPILLS OF HAZARDOUS SUBSTANCES, EXTREMELY HAZARDOUS SUBSTANCES, PETROLEUM, AND OBJECTIONABLE SUBSTANCES THAT ARE OF A QUANTITY, TYPE, DURATION AND LOCATION AS LISTED IN SECTION 4(1) OF THIS RULE.

327 IAC 2-6.1-2 SPECIAL AREAS
AUTHORITY: IC 13-14-8-7
AFFECTED: IC 13-11-2; IC 13-18-1; IC 13-18-3; IC 13-18-8; IC 13-18-17
SEC. 2. CERTAIN AREAS OF THE STATE ARE RECOGNIZED AS HAVING UNIQUE GEOLOGY, A LARGE SECTION OF THE MID-SOUTHERN PART OF THE STATE IS A KARST REGION, PORTIONS OF SAINT JOSEPH, ELKHART, KOSCIUSKO, AND LAGRANGE COUNTIES CONTAIN A SOLE SOURCE AQUIFER AS REFERENCED IN 42 U.S.C. 300h-3(e). THE WATERS OF THE STATE ARE PARTICULARLY VULNERABLE TO DAMAGE FROM SPILLS IN THESE AREAS.

327 IAC 2-6.1-3 EXCLUSIONS
AUTHORITY: IC 13-14-8-7
AFFECTED: IC 13-11-2; IC 13-18-1; IC 13-18-3; IC 13-18-8; IC 13-18-17
SEC. 3. NOTWITHSTANDING ANY OTHER SECTION OF THIS RULE, THE REPORTING REQUIREMENT OF THIS RULE DOES NOT APPLY TO THE FOLLOWING OCCURRENCES:
(1) DISCHARGES OR EXCEEDANCES THAT ARE UNDER THE JURISDICTION OF AN APPLICABLE PERMIT WHEN THE SUBSTANCE IN QUESTION IS COVERED BY THE PERMIT AND DEATH OR ACUTE INJURY OR ILLNESS TO ANIMALS OR HUMANS DOES NOT OCCUR.
(2) LAWFUL APPLICATION OF MATERIALS, INCLUDING, BUT NOT LIMITED TO:
(A) COMMERCIAL OR NATURAL FERTILIZERS AND PESTICIDES ON OR TO LAND OR WATER; OR
(B) DUST SUPPRESSION MATERIALS.
(3) THE APPLICATION OF PETROLEUM NECESSARY FOR CONSTRUCTION THAT DOES NOT DAMAGE WATERS OF THE STATE.
(4) SPILLS OF LESS THAN ONE (1) POUND OR ONE (1) PINT.
(5) SPILLS OF INTEGRAL OPERATING FLUIDS, IN THE USE OF MOTOR VEHICLES OR OTHER EQUIPMENT, THE TOTAL VOLUME OF WHICH IS LESS THAN OR EQUAL TO FIFTY-FIVE (55) GALLONS AND WHICH DO NOT DAMAGE WATERS OF THE STATE.
(6) OIL SHEENS PRODUCED AS A RESULT OF THE NORMAL OPERATION OF PROPERLY FUNCTIONING WATERCRAFT.
(7) A RELEASE OF A SUBSTANCE INTEGRAL TO A SPILL RESPONSE ACTIVITY THAT HAS BEEN APPROVED AND AUTHORIZED BY A STATE OR FEDERAL ONSCENE COORDINATOR, (WATER POLLUTION CONTROL BOARD; 327 IAC 2-6.1-3; FILED FEB 25, 1997, 1:00 P.M.; 20 IR 1731; ERRATA FILED MAR 7, 1997, 2:25 P.M.; 20 IR 1738; READOPTED FILED JAN 10, 2001, 3:23 P.M.; 24 IR 1518; READOPTED FILED NOV 21, 2007, 1:16 P.M.; 20071219-IR-327070553BFA; ERRATA FILED MAY 27, 2008, 2:06 P.M.; 20080625-IR-327080419AC)

327 IAC 2-6.1-4 DEFINITIONS
AUTHORITY: IC 13-14-8-7
AFFECTED: IC 13-11-2; IC 13-18-1; IC 13-18-3; IC 13-18-8; IC 13-18-17; IC 14-8-2-7; IC 14-25-7-13; IC 14-25-7-15

- SEC. 4. IN ADDITION TO THE DEFINITIONS CONTAINED IN IC 13-11-2-17(D), IC 13-11-2-35(A), IC 13-11-2-51, IC 13-11-2-158(A), IC 13-11-2-160, IC 13-11-2-265, AND IN 327 IAC 1, THE FOLLOWING DEFINITIONS APPLY TO THIS RULE:
(1) "ANIMAL" MEANS ALL MAMMALS, BIRDS, REPTILES, AMPHIBIANS, FISH, CRUSTACEANS, AND MOLLUSKS.
(2) "AQUATIC LIFE" MEANS THOSE PLANTS AND MACROINVERTEBRATES THAT ARE DEPENDENT UPON AN AQUATIC ENVIRONMENT.
(3) "DAMAGE" MEANS TO TAKE SUCH IMMEDIATE ACTION AS NECESSARY TO DAM, BLOCK, RESTRAIN, OR OTHERWISE ACT TO MOST EFFECTIVELY PREVENT A SPILL FROM ENTERING WATERS OF THE STATE OR MINIMIZE DAMAGE TO THE WATERS OF THE STATE FROM A SPILL.
(4) "DAMAGE" MEANS THE ACTUAL OR IMMINENT ALTERATION OF THE WATERS OF THE STATE SO AS TO RENDER THE WATERS HARMFUL, DETRIMENTAL, OR INJURIOUS TO:
(A) PUBLIC HEALTH, SAFETY, OR WELFARE;
(B) DOMESTIC, COMMERCIAL, INDUSTRIAL, AGRICULTURAL, OR RECREATIONAL USES; OR
(C) ANIMALS OR AQUATIC LIFE.
(5) "DOWNSTREAM WATER USER" MEANS:
(A) A COMMUNITY PUBLIC WATER SUPPLY, AS IDENTIFIED BY THE DEPARTMENT OF NATURAL RESOURCES UNDER IC 14-25-7-13(1).
(B) SIGNIFICANT WATER WITHDRAWAL FACILITY AS REGISTERED WITH THE DEPARTMENT OF NATURAL RESOURCES UNDER IC 14-25-7-15;
(C) USERS OF RECREATIONAL WATERS; OR
(D) ANY OTHER USER MADE KNOWN TO THE PERSON WHO HAS A SPILL.
(6) "EXTREMELY HAZARDOUS SUBSTANCE" MEANS A SUBSTANCE IDENTIFIED PURSUANT TO 42 U.S.C. 11002 AND 11004. (40 CFR 355 APPENDIX A)
(7) "FACILITY" MEANS ALL LAND, BUILDINGS, EQUIPMENT, STRUCTURES, AND OTHER STATIONARY ITEMS THAT ARE LOCATED ON A SINGLE SITE OR ON CONTIGUOUS SITES AND THAT ARE OWNED OR OPERATED BY THE SAME PERSON WHO BY ANY MEANS HAS CONTROL, IS CONTROLLED BY, OR IS UNDER COMMON CONTROL WITH, SUCH PERSON.
(8) "FACILITY BOUNDARY" MEANS THE BOUNDARY OF A FACILITY OR AN EASEMENT OR RIGHT-OF-WAY.
(9) "HAZARDOUS SUBSTANCE" HAS THE MEANING SET FORTH IN 42 U.S.C. 9601(14).
(10) "MODE OF TRANSPORTATION" INCLUDES, BUT IS NOT LIMITED TO, CARRIAGE BY:
(A) RAIL AND MOTOR VEHICLES;
(B) AIRCRAFT;
(C) WATERCRAFT;
(D) PIPELINES; OR
(E) OTHER MEANS OF TRANSPORTATION;
IN COMMERCE. THIS DEFINITION EXCLUDES CARRIAGE WITHIN A FACILITY BY TRANSPORTATION EQUIPMENT OWNED, OPERATED, OR CONTROLLED BY THAT FACILITY.
(11) "OBJECTIONABLE SUBSTANCES" MEANS SUBSTANCES THAT ARE:
(A) OF A QUANTITY AND A TYPE, AND
(B) PRESENT FOR A DURATION AND IN A LOCATION;
SO AS TO DAMAGE WATERS OF THE STATE. THIS DEFINITION EXCLUDES HAZARDOUS SUBSTANCES, EXTREMELY HAZARDOUS SUBSTANCES, PETROLEUM, AND MIXTURES THEREOF.
(12) "ON SCENE OFFICIAL" MEANS A STATE OR FEDERATED OFFICIAL DESIGNATED BY THE DEPARTMENT, THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, OR THE UNITED STATES COAST GUARD TO DIRECT AND COORDINATE SPECIAL SPILL RESPONSE ACTIVITIES.
(13) "RECREATIONAL WATERS" MEANS ANY WATER USED FOR:
(A) BOATING, SWIMMING, FISHING, HUNTING, TRAPPING, OR WILDLIFE VIEWING; OR
(B) PUBLIC ACCESS AREAS THAT ARE OWNED BY THE DEPARTMENT OF NATURAL RESOURCES OR THE FEDERAL GOVERNMENT; AS LISTED BY THE DEPARTMENT.
(14) "REPORTABLE QUANTITY" MEANS THE AMOUNT OF A HAZARDOUS SUBSTANCE OR EXTREMELY HAZARDOUS SUBSTANCE THAT IS REQUIRED TO BE REPORTED UNDER LAW UNDER 42 U.S.C. 9602(A) AND (B) AND 42 U.S.C. 9603(A). (40 CFR 302.4 OR 40 CFR 355 APPENDIX A)
(15) "SPILL" MEANS ANY UNEXPECTED, UNINTENDED, ABNORMAL, OR UNAPPROVED DUMPING, LEAKAGE, DRAINAGE, SEEPAGE, DISCHARGE OR OTHER LOSS OF PETROLEUM, HAZARDOUS SUBSTANCES, EXTREMELY HAZARDOUS SUBSTANCES, OR OBJECTIONABLE SUBSTANCES. THE TERM DOES NOT INCLUDE RELEASES TO IMPERMEABLE SURFACES WHEN THE SUBSTANCE DOES NOT MIGRATE OFF THE SURFACE OR PENETRATE THE SURFACE AND ENTER THE SOIL.
(16) "SPILL RESPONSE", FOR PURPOSES OF THIS RULE, MEANS THE FOLLOWING:
(A) THE SPILL IS CONTAINED; AND
(B) FREE MATERIAL IS REMOVED OR NEUTRALIZED.
(17) "SPILL REPORT" MEANS AN ORAL REPORT THAT INCLUDES THE FOLLOWING INFORMATION ABOUT A SPILL, TO THE EXTENT THAT THE INFORMATION IS KNOWN AT THE TIME OF THE REPORT:
(A) THE NAME, ADDRESS, AND TELEPHONE NUMBER OF THE PERSON MAKING THE SPILL REPORT.
(B) THE NAME, ADDRESS, AND TELEPHONE NUMBER OF A CONTACT PERSON IF DIFFERENT FROM CLAUSE (A).
(C) THE LOCATION OF THE SPILL.
(D) THE TIME OF THE SPILL.
(E) THE IDENTIFICATION OF THE SUBSTANCE SPILLED.
(F) THE APPROXIMATE QUANTITY OF THE SUBSTANCE THAT HAS BEEN OR MAY FURTHER BE SPILLED.
(G) THE DURATION OF THE SPILL.
(H) THE SOURCE OF THE SPILL.
(I) NAME AND LOCATION OF THE WATERS DAMAGED.
(J) THE IDENTITY OF ANY RESPONSE ORGANIZATION RESPONDING TO THE SPILL.
(K) WHAT MEASURES HAVE BEEN OR WILL BE UNDERTAKEN TO PERFORM A SPILL RESPONSE.
(L) ANY OTHER INFORMATION THAT MAY BE SIGNIFICANT TO THE RESPONSE ACTION.
(18) "WATERS", AS DEFINED IN IC 13-11-2-265, MEANS THE ACCUMULATIONS OF WATER, SURFACE AND UNDERGROUND, NATURAL AND ARTIFICIAL, PUBLIC AND PRIVATE, OR PARTS THEREOF, THAT ARE WHOLLY OR PARTIALLY WITHIN, FLOW THROUGH, OR BORDER UPON THIS STATE. THE TERM DOES NOT INCLUDE ANY PRIVATE POND OR ANY FLOW-STREAM POND, RESERVOIR, OR FACILITY BUILT FOR REDUCTION OR CONTROL OF POLLUTION OR COOLING OF WATER PRIOR TO DISCHARGE UNLESS THE DISCHARGE FROM THE POND, RESERVOIR, OR FACILITY CAUSES OR THREATENS TO CAUSE WATER POLLUTION. (WATER POLLUTION CONTROL BOARD; 327 IAC 2-6.1-4; FILED FEB 25, 1997, 1:00 P.M.; 20 IR 1731; ERRATA FILED MAR 7, 1997, 2:25 P.M.; 20 IR 1738; READOPTED FILED JAN 10, 2001, 3:23 P.M.; 24 IR 1518; READOPTED FILED NOV 21, 2007, 1:16 P.M.; 20071219-IR-327070553BFA)

327 IAC 2-6.1-5 REPORTABLE SPILLS; FACILITY

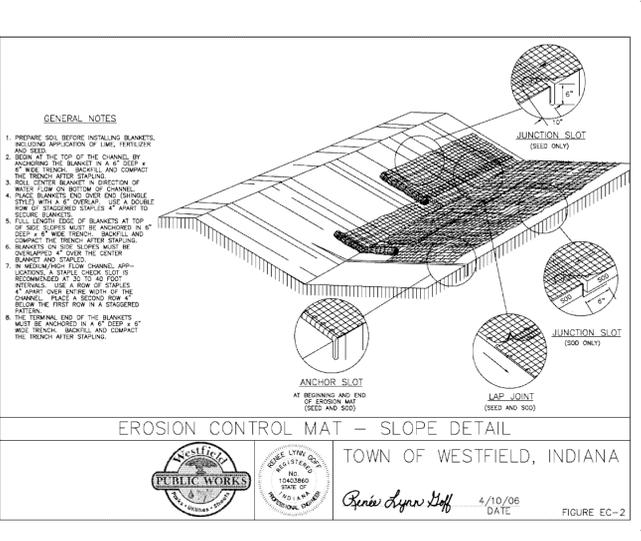
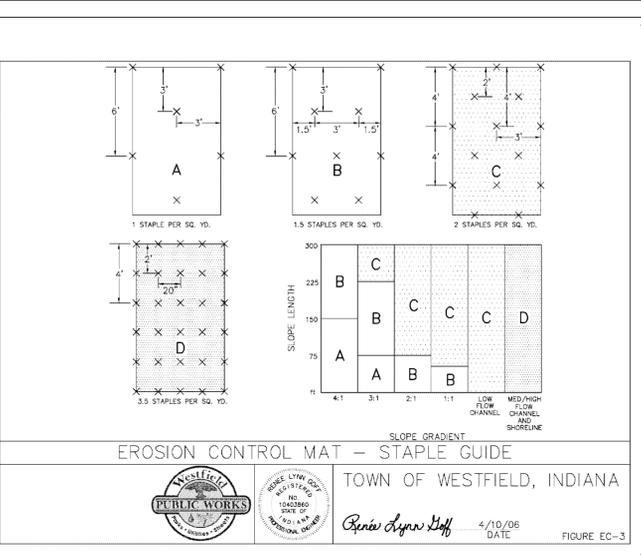
AFFECTED: IC 13-11-2; IC 13-18-1; IC 13-18-3; IC 13-18-8; IC 13-18-17
SEC. 5. THE FOLLOWING SPILLS FROM A FACILITY MUST BE REPORTED:
(1) SPILLS THAT DAMAGE THE WATERS OF THE STATE SO AS TO CAUSE DEATH OR ACUTE INJURY OR ILLNESS TO HUMANS OR ANIMAL.
(2) SPILLS FROM A FACILITY THAT HAS BEEN NOTIFIED IN WRITING BY A WATER UTILITY THAT IT IS LOCATED IN A DELINEATED PUBLIC WATER SUPPLY WELLDHEAD PROTECTION AREA AS APPROVED BY THE DEPARTMENT UNDER 327 IAC 8-4.1 THAT ARE:
(A) SPILLS OF HAZARDOUS SUBSTANCES OR EXTREMELY HAZARDOUS SUBSTANCES WHEN THE AMOUNT SPILLED EXCEEDS ONE HUNDRED (100) POUNDS OR THE REPORTABLE QUANTITY, WHICHEVER IS LESS;
(B) SPILLS OF PETROLEUM WHEN THE AMOUNT SPILLED EXCEEDS FIFTY-FIVE (55) GALLONS; OR
(C) SPILLS OF OBJECTIONABLE SUBSTANCES AS DEFINED IN SECTION 4(1) OF THIS RULE.
(3) SPILLS THAT DAMAGE WATERS OF THE STATE AND THAT:
(A) ARE LOCATED WITHIN FIFTY (50) FEET OF A KNOWN PRIVATE DRINKING WATER WELL LOCATED BEYOND THE FACILITY PROPERTY BOUNDARY; OR
(B) ARE LOCATED WITHIN ONE HUNDRED (100) YARDS OF:
(I) ANY HIGH QUALITY WATER DESIGNATED AS AN OUTSTANDING STATE RESOURCE PURSUANT TO 327 IAC 2-1-2(3), EXCLUDING LAKE MICHIGAN;
(II) ANY WATER DESIGNATED AS EXCEPTIONAL USE PURSUANT TO 327 IAC 2-13(A)(6) [SIC.];
327 IAC 2-1-3(A)(6)] AND 327 IAC 2-1-11(B);
(III) ANY WATER DESIGNATED AS CAPABLE OF SUPPORTING A SALMONID FISHERY PURSUANT TO 327 IAC 2-1-8(C)(1), EXCEPT LAKE MICHIGAN; OR
(IV) ANY WATER THAT IS A FISH HATCHERY, FISH AND WILDLIFE AREA, NATURE PRESERVE, OR RECREATIONAL WATER OWNED BY THE DEPARTMENT OF NATURAL RESOURCES OR THE FEDERAL GOVERNMENT.
(4) FOR ANY SPILL WHICH DOES NOT MEET THE CRITERIA IN SUBDIVISIONS (1) THROUGH (3), THE FOLLOWING MUST BE REPORTED:
(A) SPILLS TO SURFACE WATERS:
(I) SPILLS OF HAZARDOUS SUBSTANCES OR EXTREMELY HAZARDOUS SUBSTANCES WHEN THE AMOUNT SPILLED EXCEEDS ONE HUNDRED (100) POUNDS OR THE REPORTABLE QUANTITY, WHICHEVER IS LESS;
(II) SPILLS OF PETROLEUM OF SUCH QUANTITY AS TO CAUSE A SHEEN UPON THE WATERS; OR
(III) SPILLS OF OBJECTIONABLE SUBSTANCES AS DEFINED IN SECTION 4(1) OF THIS RULE.
(B) SPILLS TO SOIL BEYOND THE FACILITY BOUNDARY:
(I) SPILLS OF HAZARDOUS SUBSTANCES OR EXTREMELY HAZARDOUS SUBSTANCES WHEN THE AMOUNT SPILLED EXCEEDS ONE HUNDRED (100) POUNDS OR THE REPORTABLE QUANTITY, WHICHEVER IS LESS;
(II) SPILLS OF PETROLEUM WHEN THE AMOUNT SPILLED EXCEEDS FIFTY-FIVE (55) GALLONS; OR
(III) SPILLS OF OBJECTIONABLE SUBSTANCES AS DEFINED IN SECTION 4(1) OF THIS RULE.
(C) SPILLS TO SOIL WITHIN THE FACILITY BOUNDARY:
(I) SPILLS OF HAZARDOUS SUBSTANCES OR EXTREMELY HAZARDOUS SUBSTANCES WHEN THE AMOUNT SPILLED EXCEEDS REPORTABLE QUANTITY.
(II) SPILLS OF PETROLEUM WHEN THE SPILLED AMOUNT EXCEEDS ONE THOUSAND (1,000) GALLONS; OR
(III) SPILLS OF OBJECTIONABLE SUBSTANCES AS DEFINED IN SECTION 4(1) OF THIS RULE.
(5) ANY SPILL FOR WHICH A SPILL RESPONSE HAS NOT BEEN DONE A WATER POLLUTION CONTROL BOARD; 327 IAC 2-6.1-5; FILED FEB 25, 1997, 1:00 P.M.; 20 IR 1732; ERRATA FILED MAR 7, 1997, 2:25 P.M.; 20 IR 1738; READOPTED FILED JAN 10, 2001, 3:23 P.M.; 24 IR 1518; READOPTED FILED NOV 21, 2007, 1:16 P.M.; 20071219-IR-327070553BFA)

327 IAC 2-6.1-6 REPORTABLE SPILLS; TRANSPORTATION
AUTHORITY: IC 13-14-8-7
AFFECTED: IC 13-11-2; IC 13-18-1; IC 13-18-3; IC 13-18-8; IC 13-18-17
SEC. 6. NOTWITHSTANDING ANY OTHER SECTION OF THIS RULE, EMERGENCY SPILL RESPONSE ACTIONS TAKE PRECEDENCE OVER REPORTING REQUIREMENTS, AND WHEN EMERGENCY SPILL RESPONSE ACTIVITIES RENDER SPILL REPORTING INCONSISTENT WITH EFFECTIVE RESPONSE ACTIVITIES, COMMUNICATION OF THE SPILL REPORT TO THE INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT MAY BE DELAYED IN SITUATIONS WHERE THE SPILL REPORT IS DELAYED. THE BURDEN OF PROVING THE NEED FOR THE DELAY SHALL BE UPON THE RESPONSIBLE PERSON. (WATER POLLUTION CONTROL BOARD; 327 IAC 2-6.1-6; FILED FEB 25, 1997, 1:00 P.M.; 20 IR 1734; READOPTED FILED JAN 10, 2001, 3:23 P.M.; 24 IR 1518; ERRATA FILED FEB 6, 2006, 11:15 A.M.; 29 IR 1936; ERRATA FILED OCT 20, 2006, 10:08 A.M.; 20061101-IR-327060497AC; READOPTED FILED NOV 21, 2007, 1:16 P.M.; 20071219-IR-327070553BFA; ERRATA FILED MAY 27, 2008, 2:06 P.M.; 20080625-IR-327080419AC)

327 IAC 2-6.1-7 REPORTABLE SPILLS; RESPONSIBILITIES
AUTHORITY: IC 13-14-8-7
AFFECTED: IC 13-11-2; IC 13-18-1; IC 13-18-3; IC 13-18-8; IC 13-18-17
SEC. 7. ANY PERSON WHO OPERATES, CONTROLS, OR MAINTAINS ANY MODE OF TRANSPORTATION OR FACILITY FROM WHICH A SPILL OCCURS SHALL, UPON DISCOVERY OF A REPORTABLE SPILL TO THE SOIL OR SURFACE WATERS OF THE STATE, DO THE FOLLOWING:
(1) CONTAIN THE SPILL, IF POSSIBLE, TO PREVENT ADDITIONAL SPILLED MATERIAL FROM ENTERING THE WATERS OF THE STATE.
(2) UNDERTAKE OR CAUSE OTHERS TO UNDERTAKE ACTIVITIES NEEDED TO ACCOMPLISH A SPILL RESPONSE.
(3) AS SOON AS POSSIBLE, BUT WITHIN TWO (2) HOURS OF DISCOVERY, COMMUNICATE A SPILL REPORT TO THE DEPARTMENT OF ENVIRONMENTAL MANAGEMENT, OFFICE OF LAND QUALITY, EMERGENCY RESPONSE SECTION AREA CODE 1-888-233-7745 FOR IN-STATE CALLS (TOLL FREE), (317) 233-7745 FOR OUT-OF-STATE CALLS. IF NEW OR UPDATED SPILL REPORT INFORMATION BECOMES KNOWN THAT INDICATES A SIGNIFICANT INCREASE IN THE LIKELIHOOD OF DAMAGE TO THE WATERS OF THE STATE, THE RESPONSIBLE PARTY SHALL NOTIFY THE DEPARTMENT AS SOON AS POSSIBLE BUT WITHIN TWO (2) HOURS OF THE TIME THE NEW OR UPDATED INFORMATION BECOMES KNOWN.
(4) SUBMIT TO THE INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT, OFFICE OF LAND QUALITY, EMERGENCY RESPONSE SECTION (MC 66-30), 2525 N. SHADELAND AVE., SUITE 100, INDIANAPOLIS, IN 46219-1787, A WRITTEN COPY OF THE SPILL REPORT IF REQUESTED IN WRITING BY THE DEPARTMENT.
(5) EXCEPT FROM MODES OF TRANSPORTATION OTHER THAN PIPELINES, EXERCISE DUE DILIGENCE AND DOCUMENT ATTEMPTS TO NOTIFY THE FOLLOWING:
(A) FOR SPILLS TO SURFACE WATER THAT CAUSE DAMAGE, THE NEAREST AFFECTED DOWNSTREAM WATER USER LOCATED WITHIN TEN (10) MILES OF THE SPILL AND IN THE STATE OF INDIANA; AND
(B) FOR SPILLS TO SOIL OUTSIDE THE FACILITY BOUNDARY, THE AFFECTED PROPERTY OWNER OR OWNERS, OPERATOR OR OPERATORS, OR OCCUPANT OR OCCUPANTS. (WATER POLLUTION CONTROL BOARD; 327 IAC 2-6.1-7; FILED FEB 25, 1997, 1:00 P.M.; 20 IR 1733; READOPTED FILED JAN 10, 2001, 3:23 P.M.; 24 IR 1518; ERRATA FILED FEB 6, 2006, 11:15 A.M.; 29 IR 1936; ERRATA FILED OCT 20, 2006, 10:08 A.M.; 20061101-IR-327060497AC; READOPTED FILED NOV 21, 2007, 1:16 P.M.; 20071219-IR-327070553BFA; ERRATA FILED MAY 27, 2008, 2:06 P.M.; 20080625-IR-327080419AC)

327 IAC 2-6.1-8 EMERGENCY SPILL RESPONSE ACTIONS
AUTHORITY: IC 13-14-8-7
AFFECTED: IC 13-11-2; IC 13-18-1; IC 13-18-3; IC 13-18-8; IC 13-18-17
SEC. 8. NOTWITHSTANDING ANY OTHER SECTION OF THIS RULE, EMERGENCY SPILL RESPONSE ACTIONS TAKE PRECEDENCE OVER REPORTING REQUIREMENTS, AND WHEN EMERGENCY SPILL RESPONSE ACTIVITIES RENDER SPILL REPORTING INCONSISTENT WITH EFFECTIVE RESPONSE ACTIVITIES, COMMUNICATION OF THE SPILL REPORT TO THE INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT MAY BE DELAYED IN SITUATIONS WHERE THE SPILL REPORT IS DELAYED. THE BURDEN OF PROVING THE NEED FOR THE DELAY SHALL BE UPON THE RESPONSIBLE PERSON. (WATER POLLUTION CONTROL BOARD; 327 IAC 2-6.1-8; FILED FEB 25, 1997, 1:00 P.M.; 20 IR 1734; READOPTED FILED JAN 10, 2001, 3:23 P.M.; 24 IR 1518; ERRATA FILED FEB 6, 2006, 11:15 A.M.; 29 IR 1936; ERRATA FILED OCT 20, 2006, 10:08 A.M.; 20061101-IR-327060497AC; READOPTED FILED NOV 21, 2007, 1:16 P.M.; 20071219-IR-327070553BFA)

327 IAC 2-6.1-9 COMPLIANCE CONFIRMATION
AUTHORITY: IC 13-14-8-7
AFFECTED: IC 13-11-2; IC 13-18-1; IC 13-18-3; IC 13-18-8; IC 13-18-17
SEC. 9. WHEN SPILL REPORTING AND RESPONSE, AS PROVIDED FOR IN THIS RULE, HAS OCCURRED, THE DEPARTMENT SHALL, UPON REQUEST, ISSUE A LETTER CONFIRMING COMPLIANCE WITH THIS RULE AND STATING THAT NO FURTHER ACTION IS REQUIRED UNDER THIS RULE. (WATER POLLUTION CONTROL BOARD; 327 IAC 2-6.1-9; FILED FEB 25, 1997, 1:00 P.M.; 20 IR 1734; READOPTED FILED JAN 10, 2001, 3:23 P.M.; 24 IR 1518; READOPTED FILED NOV 21, 2007, 1:16 P.M.; 20071219-IR-327070553BFA)



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WEIHE ENGINEERS
Land Surveying/Civil Engineering
Landscape Architecture

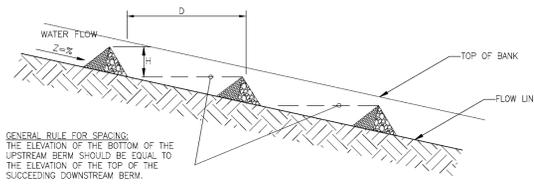
Table with 2 columns: Field and Value. Includes Project No., Date, Design By, Drawn By, Checked By, Date.

REVISIONS AND ISSUES
REVISION PER COMMENTS FROM COUNTY HIGHWAY SURVEYOR'S OFFICE, AND HEALTH DEPARTMENT
DATE: 11/26/12 BY: W12-0055
DESIGNED BY: 201102080-Med-2
DRAWN BY:
CHECKED BY:
DATE: 11/24/2012

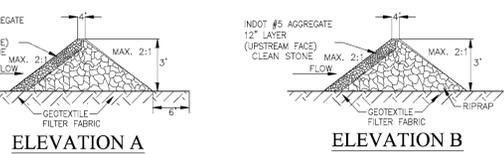
JAMES E. SHIELDS JR. P.E. 10201933

REGISTERED PROFESSIONAL ENGINEER
No. PE10261338
JAMES E. SHIELDS JR.
Professional Engineer

SUNDOWN GARDENS
SUNDOWN COMMERCIAL GROUP
STORMWATER POLLUTUIN PREVENTION PLAN
A part of the Sundalet Center of Indian 22, Township 19 North, Range 3 East, Washington Township, Hamilton County, Indiana.
PREPARED FOR:
SHEET NO. C201
PROJECT NO. W12-0055



CHECK DAMS IN SWALE
2 ACRES OR LESS OF DRAINAGE AREA

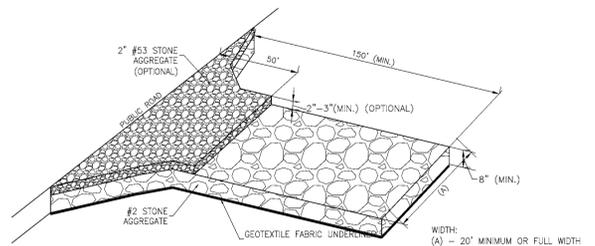


NOTE:
1. REFERENCED IN CHAPTER 7 PAGE 97 IN THE INDIANA STORM WATER QUALITY MANUAL.

INSTALLATION
1. LAY OUT THE LOCATION OF THE CHECK DAM.
2. EXCAVATE A CUTOFF TRENCH INTO THE CHANNEL BOTTOM AND DITCH BANKS, EXTENDING AT A MINIMUM OF 18 INCHES BEYOND THE TOP OF THE DITCH BANK.
3. INSTALL AND ANCHOR FILTER FABRIC IN THE CHANNEL AND CUTOFF TRENCH.
4. PLACE RIPRAP IN THE CUTOFF TRENCH AND CHANNEL TO THE LINES AND DIMENSIONS SHOWN IN THE CONSTRUCTION PLANS. THE CENTER OF EACH DAM MUST BE AT LEAST NINE INCHES LOWER THAN THE UPPERMOST POINTS OF CONTACT BETWEEN THE RIPRAP DAM AND CHANNEL BANKS (SEE ROCK CHECK DAM WORKSHEET ON PAGE 101).
5. EXTEND THE RIPRAP AT LEAST 18 INCHES BEYOND THE TOP OF THE CHANNEL BANKS TO KEEP OVERFLOW WATER FROM ERODING AREAS ADJACENT TO THE CHANNEL BANKS BEFORE IT RE-ENTERS THE CHANNEL.
6. PLACE FILTER MEDIUM (INDOT CA NO. 5 AGGREGATE) ON THE UP-SLOPE SIDE OF THE DAM. PLACE FILTER MEDIUM OVER THE ENTIRE FACE OF THE DAM UP TO THE BASE OF THE OVERFLOW WEIR NOTCH.
7. STABILIZE THE CHANNEL ABOVE THE UPPERMOST DAM.
8. INSTALL AN EROSION-RESISTANT LINING IN THE CHANNEL BELOW THE LOWERMOST DAM. THE LINING SHOULD EXTEND A MINIMUM DISTANCE OF SIX FEET BELOW THE DAM.
9. ADDITIONAL SEDIMENT STORAGE CAN BE PROVIDED BY EXCAVATING A SMALL SEDIMENT TRAP ON THE UPSTREAM SIDE OF THE CHECK DAM.

MAINTENANCE
- INSPECT WITHIN 24 HOURS OF EACH RAIN EVENT AND AT LEAST ONCE EVERY SEVEN CALENDAR DAYS.
- IF SIGNIFICANT EROSION OCCURS BETWEEN DAMS, INSTALL AN EROSION-RESISTANT LINER IN THAT PORTION OF THE CHANNEL.
- REMOVE ACCUMULATED SEDIMENT WHEN IT REACHES ONE-HALF THE HEIGHT OF THE DAM TO MAINTAIN CHANNEL CAPACITY, ALLOW DRAINAGE THROUGH THE DAM, AND PREVENT LARGE FLOW FROM DISPLACING SEDIMENT.
- ADD RIPRAP AND AGGREGATE AS NEEDED TO MAINTAIN DESIGN HEIGHT AND CROSS SECTION OF THE DAMS.
- WHEN DAMS ARE NO LONGER NEEDED, REMOVE THE RIPRAP AND AGGREGATE AND STABILIZE THE CHANNEL USING AN EROSION-RESISTANT LINING IF NECESSARY. (RIPRAP AND AGGREGATE FROM THE DAM MAY BE REMOVED OR UTILIZED TO STABILIZE THE CHANNEL.)

ROCK CHECK DAM
FOR SWALES AND DITCHES (NO SCALE)



INSTALLATION:
1. REMOVE ALL VEGETATION AND OTHER OBJECTIONABLE MATERIAL FROM THE FOUNDATION AREA.
2. GRADE FOUNDATION AND CROWN FOR POSITIVE DRAINAGE. IF THE SLOPE OF THE CONSTRUCTION ENTRANCE IS TOWARD A PUBLIC ROAD AND EXCEEDS TWO PERCENT, CONSTRUCT AN EIGHT INCH HIGH DIVERSION RIDGE WITH A RATIO OF 3:1 TO 1 SIDE SLOPES ACROSS THE FOUNDATION AREA ABOUT 15 FEET FROM THE ENTRANCE TO DIVERT RUNOFF AWAY FROM THE ROAD.
3. INSTALL A CULVERT PIPE UNDER THE PAD IF NEEDED TO MAINTAIN PROPER PUBLIC ROAD DRAINAGE.
4. IF WET CONDITIONS ARE ANTICIPATED, PLACE GEOTEXTILE FABRIC ON THE GRADED FOUNDATION TO IMPROVE STABILITY.
5. PLACE AGGREGATE (INDOT CA NO. 2) TO THE DIMENSIONS AND GRADE SHOWN IN THE CONSTRUCTION PLANS, LEAVING THE SURFACE SMOOTH AND SLOPED FOR DRAINAGE.
6. TOP-DRESS THE FIRST 50 FEET ADJACENT TO THE PUBLIC ROADWAY WITH TWO TO THREE INCHES OF WASHED AGGREGATE (INDOT CA NO. 53) (OPTIONAL, USED PRIMARILY WHERE THE PURPOSE OF THE PAD IS TO KEEP SOIL FROM ADHERING TO VEHICLE TIRES).
7. WHERE POSSIBLE, DIVERT ALL STORM WATER RUNOFF AND DRAINAGE FROM THE INGRESS/EGRESS PAD TO A SEDIMENT TRAP OR BASIN.

MAINTENANCE:
- INSPECT DAILY.
- RESHAPE PAD AS NEEDED FOR DRAINAGE AND RUNOFF CONTROL.
- TOP DRESS WITH CLEAN AGGREGATE AS NEEDED.
- IMMEDIATELY REMOVE MUD AND SEDIMENT TRACKED OR WASHED ONTO PUBLIC ROADS.
- FLUSHING SHOULD ONLY BE USED IF THE WATER CAN BE CONVEYED INTO A SEDIMENT TRAP OR BASIN.

REFERENCED IN CHAPTER 7 PAGE 17-20 IN INIANA STORM WATER QUALITY MANUAL.

TEMPORARY CONSTRUCTION INGRESS/EGRESS PAD
LARGE SITES - TWO ACRES OR LARGER (NO SCALE)

TABLE 1. TEMPORARY SEEDING SPECIFICATIONS

SEED SPECIES	RATE PER ACRE	PLANTING DEPTH	OPTIMUM DATES
WHEAT OR RYE	150 LBS.	1 TO 1 1/2 INCHES	SEPT. 15 - OCT. 30
SPRING OATS	100 LBS.	1 INCH	MARCH 1 - APRIL 15
ANNUAL RYEGRASS	40 LBS.	1/2 INCH	MARCH 1 - MAY 1 AUG. 1 - SEPT. 1
GERMAN MILLET	40 LBS.	1 TO 2 INCHES	MAY 1 - JUNE 1
SUDANGRASS	35 LBS.	1 TO 2 INCHES	MAY 1 - JULY 30
BUCKWHEAT	60 LBS.	1 TO 2 INCHES	APRIL 15 - JUNE 1
CORN (BROADCAST)	300 LBS.	1 TO 2 INCHES	MAY 11 - AUG. 10
SORGHUM	35 LBS.	1 TO 2 INCHES	MAY 1 - JULY 15

1. PERENNIAL SPECIES MAY BE USED AS A TEMPORARY COVER, ESPECIALLY IF THE AREA TO BE SEEDER WILL REMAIN BARE FOR MORE THAN ONE YEAR.
2. SEEDING DONE OUTSIDE THE OPTIMUM SEEDING DATES INCREASES THE CHANCES OF SEEDING FAILURE. DATES MAY BE EXTENDED OR SHORTENED BASED ON THE LOCATION OF THE PROJECT SITE WITHIN THE STATE.

NOTES:
MULCH ALONE IS AN ACCEPTABLE TEMPORARY COVER AND MAY BE USED IN LIEU OF TEMPORARY SEEDING, PROVIDED THAT IT IS APPROPRIATELY ANCHORED.
A HIGH POTENTIAL FOR FERTILIZER, SEED, AND MULCH TO WASH EXISTS ON STEEP BANKS, CUTS, AND IN CHANNELS AND AREAS OF CONCENTRATED FLOW.

SEEDBED PREPARATION
1. TEST SOIL TO DETERMINE PH AND NUTRIENT LEVELS.
2. APPLY SOIL AMENDMENTS AS RECOMMENDED BY THE SOIL TEST. IF TESTING IS NOT DONE, APPLY 400 TO 600 POUNDS PER ACRE OF 12-12-12 ANALYSIS FERTILIZER, OR EQUIVALENT.
3. WORK THE SOIL AMENDMENTS INTO THE UPPER TWO TO FOUR INCHES OF THE SOIL WITH A DISK OR RAKE OPERATED ACROSS THE SLOPE.

SEEDING
1. SELECT A SEED SPECIES OR AN APPROPRIATE SEED MIXTURE AND APPLICATION RATE FROM TABLE 1.
2. APPLY SEED UNIFORMLY WITH A DRILL OR CULTIPACKER SEEDER OR BY BROADCASTING, PLANT OR COVER SEED TO THE DEPTH SHOWN IN TABLE 1.

NOTES:
1. IF DRILLING OR BROADCASTING THE SEED, ENSURE GOOD SEED-TO-SOIL CONTACT BY FIRING THE SEEDBED WITH A ROLLER OR CULTIPACKER AFTER COMPLETING SEEDING OPERATIONS.
2. DAILY SEEDING WHEN THE SOIL IS MOST UNUSUALLY MOIST EFFECTIVE.
3. IF SEEDING IS DONE WITH A HYDROSEEDER, FERTILIZER AND MULCH CAN BE APPLIED WITH THE SEED IN A SLURRY MIXTURE.
4. APPLY MULCH AND ANCHOR IT IN PLACE.

MAINTENANCE
- INSPECT WITHIN 24 HOURS OF EACH RAIN EVENT AND AT LEAST ONCE EVERY SEVEN CALENDAR DAYS.
- CHECK FOR EROSION OR MOVEMENT OF MULCH AND REPAIR IMMEDIATELY.
- MONITOR FOR EROSION DAMAGE AND ADEQUATE COVER (80 PERCENT DENSITY); RESEED, FERTILIZE, AND APPLY MULCH WHERE NECESSARY.
- IF NITROGEN DEFICIENCY IS APPARENT, TOP-DRESS FALL SEEDED WHEAT OR RYE SEEDING WITH 50 POUNDS PER ACRE OF NITROGEN IN FEBRUARY OR MARCH.

REFERENCE IN CHAPTER 7 PAGES 31-33 IN THE INDIANA STORM WATER QUALITY MANUAL.

TEMPORARY SEED

OPEN LOW-MAINTENANCE AREAS (REMAINING IDLE MORE THAN SIX MONTHS)

SEED MIXTURES	RATE PER ACRE PURE LIVE SEED	OPTIMUM SOIL PH
1. PERENNIAL RYEGRASS - WHITE CLOVER	70 LBS. 2 LBS.	5.6 TO 7.0
2. PERENNIAL RYEGRASS - TALL FESCUE	70 LBS. 50 LBS.	5.6 TO 7.0
3. TALL FESCUE - WHITE CLOVER	70 LBS. 2 LBS.	5.5 TO 7.5

STEEP BANKS AND CUTS, LOW-MAINTENANCE AREAS (NOT MOWED)

SEED MIXTURES	RATE PER ACRE PURE LIVE SEED	OPTIMUM SOIL PH
1. SMOOTH BROME GRASS - RED CLOVER	35 LBS. 20 LBS.	5.5 TO 7.0
2. TALL FESCUE - WHITE CLOVER	50 LBS. 2 LBS.	5.5 TO 7.5
3. TALL FESCUE - RED CLOVER	50 LBS. 20 LBS.	5.5 TO 7.5
4. ORCHARD GRASS - RED CLOVER	30 LBS. 20 LBS. 2 LBS.	5.6 TO 7.0
5. CROWNWITCH - TALL FESCUE	12 LBS. 30 LBS.	5.6 TO 7.0

LAWNS AND HIGH-MAINTENANCE AREAS

SEED MIXTURES	RATE PER ACRE PURE LIVE SEED	OPTIMUM SOIL PH
1. BLUEGRASS	140 LBS.	5.5 TO 7.0
2. PERENNIAL RYEGRASS (TURF TYPE)	60 LBS. 90 LBS.	5.6 TO 7.0
3. TALL FESCUE (TURF TYPE) - BLUEGRASS	170 LBS. 30 LBS.	5.6 TO 7.5

CHANNELS AND AREAS OF CONCENTRATED FLOW

SEED MIXTURES	RATE PER ACRE PURE LIVE SEED	OPTIMUM SOIL PH
1. PERENNIAL RYEGRASS - WHITE	150 LBS. 2 LBS.	5.5 TO 7.0
2. KENTUCKY BLUEGRASS - SMOOTH BROMEGRASS - SWITCHGRASS	20 LBS. 10 LBS. 3 LBS.	5.5 TO 7.5
3. TALL FESCUE - PERENNIAL RYEGRASS - WHITE CLOVER	10 LBS. 10 LBS. 2 LBS.	5.5 TO 7.5
4. TALL FESCUE - PERENNIAL RYEGRASS - KENTUCKY BLUEGRASS	150 LBS. 20 LBS. 20 LBS.	5.5 TO 7.5

NOTES:
1. AN OAT OR WHEAT COMPANION OR NURSE CROP MAY BE USED WITH ANY OF THE ABOVE PERMANENT SEEDING MIXTURES, AT THE FOLLOWING RATES:
(A) SPRING OATS - ONE-FOURTH TO THREE-FOURTHS BUSHEL PER ACRE
(B) WHEAT - NO MORE THAN ONE-HALF BUSHEL PER ACRE
2. A HIGH POTENTIAL FOR FERTILIZER, SEED, AND MULCH TO WASH EXISTS ON STEEP BANKS, CUTS, AND IN CHANNELS AND AREAS OF CONCENTRATED FLOW.

INSTALLATION
1. GRADE THE SITE TO ACHIEVE POSITIVE DRAINAGE.
2. ADD TOPSOIL OR COMPOST MULCH TO ACHIEVE NEEDED DEPTH FOR ESTABLISHMENT OF VEGETATION. (COMPOST MATERIAL MAY BE ADDED TO IMPROVE SOIL MOISTURE HOLDING CAPACITY, SOIL FRACTION, AND NUTRIENT AVAILABILITY.)

SEEDBED PREPARATION
1. TEST SOIL TO DETERMINE PH AND NUTRIENT LEVELS.
2. APPLY SOIL AMENDMENTS AS RECOMMENDED BY THE SOIL TEST AND WORK INTO THE UPPER TWO TO FOUR INCHES OF SOIL. IF TESTING IS NOT DONE, APPLY 400 TO 600 POUNDS PER ACRE OF 12-12-12 ANALYSIS FERTILIZER, OR EQUIVALENT.
3. TILL THE SOIL TO OBTAIN A UNIFORM SEEDBED. USE A DISK OR RAKE, OPERATED ACROSS THE SLOPE, TO WORK THE SOIL AMENDMENTS INTO THE UPPER TWO TO FOUR INCHES OF THE SOIL.

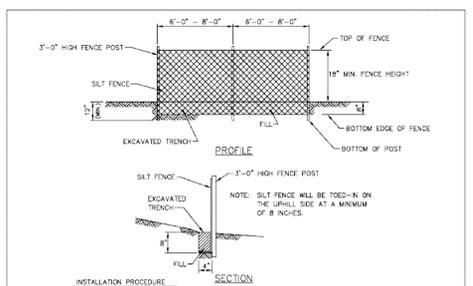
SEEDING
OPTIMUM SEEDING DATES ARE MARCH 1 TO MAY 10 AND AUGUST 10 TO SEPTEMBER 30. PERMANENT SEEDING DONE BETWEEN MAY 10 AND AUGUST 10 MAY NEED TO BE IRRIGATED. SEEDING OUTSIDE OR BEYOND OPTIMUM SEEDING DATES IS STILL POSSIBLE WITH THE UNDERSTANDING THAT RESEEDING OR OVERSEEDING MAY BE REQUIRED IF ADEQUATE SURFACE COVER IS NOT ACHIEVED. RESEEDING OR OVERSEEDING CAN BE EASILY ACCOMPLISHED IF THE SOIL SURFACE REMAINS WELL PROTECTED WITH MULCH.
1. SELECT A SEEDING MIXTURE AND RATE FROM TABLE 1. SELECT SEED MIXTURE BASED ON SITE CONDITIONS, SOIL PH, INTENDED LAND USE, AND EXPECTED LEVEL OF MAINTENANCE.
2. APPLY SEED UNIFORMLY WITH A DRILL OR CULTIPACKER SEEDER OR BY BROADCASTING. PLANT OR COVER THE SEED TO A DEPTH OF ONE-FOURTH TO ONE-HALF INCH. IF DRILLING OR BROADCASTING THE SEED, ENSURE GOOD SEED-TO-SOIL CONTACT BY FIRING THE SEEDBED WITH A ROLLER OR CULTIPACKER AFTER COMPLETING SEEDING OPERATIONS. (IF SEEDING IS DONE WITH A HYDROSEEDER, FERTILIZER AND MULCH CAN BE APPLIED WITH THE SEED IN A SLURRY MIXTURE.)
3. MULCH ALL SEEDED AREAS AND USE APPROPRIATE METHODS TO ANCHOR THE MULCH IN PLACE. CONSIDER USING EROSION CONTROL BLANKETS ON SLOPING AREAS AND CONVEYANCE CHANNELS.

MAINTENANCE
- INSPECT WITHIN 24 HOURS OF EACH RAIN EVENT AND AT LEAST ONCE EVERY SEVEN CALENDAR DAYS UNTIL THE VEGETATION IS SUCCESSFULLY ESTABLISHED.
- CHARACTERISTICS OF A SUCCESSFUL STAND INCLUDE VIGOROUS DARK GREEN OR BLuishGREEN SEEDLINGS WITH A UNIFORM VEGETATIVE COVER DENSITY OF 90 PERCENT OR MORE.
- CHECK FOR EROSION OR MOVEMENT OF MULCH.
- REPAIR DAMAGED, BARE, GULLED, OR SPARSLEY VEGETATED AREAS AND THEN FERTILIZE, RESEED, AND APPLY AND ANCHOR MULCH.
- IF PLANT COVER IS SPARSE OR PATCHY, EVALUATE THE PLANT MATERIALS CHOSEN, SOIL FERTILITY, MOISTURE CONDITION, AND MULCH APPLICATION; REPAIR AFFECTED AREAS EITHER BY OVERSEEDING OR PREPARING A NEW SEEDBED AND RESEEDING. APPLY AND ANCHOR MULCH ON THE NEWLY SEEDED AREAS.
- IF VEGETATION FAILS TO GROW, CONSIDER SOIL TESTING TO DETERMINE SOIL PH OR NUTRIENT DEFICIENCY PROBLEMS. (CONTACT YOUR SOIL AND WATER CONSERVATION DISTRICT OR COOPERATIVE EXTENSION OFFICE FOR ASSISTANCE.)
- IF ADDITIONAL FERTILIZATION IS NEEDED TO GET A SATISFACTORY STAND, DO SO ACCORDING TO SOIL TEST RECOMMENDATIONS.
- ADD FERTILIZER THE FOLLOWING GROWING SEASON. FERTILIZE ACCORDING TO SOIL TEST RECOMMENDATIONS.
- FERTILIZE TURF AREAS ANNUALLY. APPLY FERTILIZER IN A SPLIT APPLICATION. FOR COOL-SEASON GRASSES, APPLY ONE-HALF OF THE FERTILIZER IN LATE SPRING AND ONE HALF IN EARLY FALL. FOR WARM-SEASON GRASSES, APPLY ONE-THIRD IN EARLY SPRING, ONE-THIRD IN LATE SPRING, AND THE REMAINING ONE-THIRD IN MIDDLE SUMMER.

TABLE 1. PERMANENT SEEDING RECOMMENDATIONS
THIS TABLE PROVIDES SEVERAL SEED MIXTURE OPTIONS. ADDITIONAL SEED MIXTURES ARE AVAILABLE COMMERCIALY. WHEN SELECTING A MIXTURE, CONSIDER INTENDED LAND USE AND SITE CONDITIONS, INCLUDING SOIL PROPERTIES (E.G., SOIL PH AND DRAINAGE), SLOPE ASPECT, AND THE TOLERANCE OF EACH SPECIES TO SHADE AND DROUGHT.

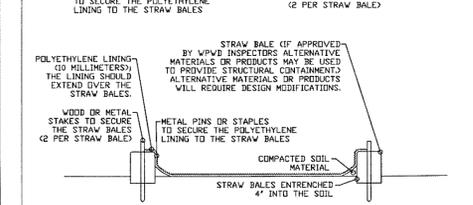
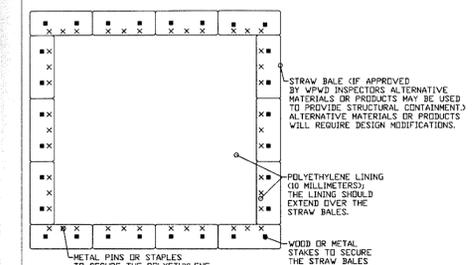
REFERENCE IN CHAPTER 7 PAGES 35-40 IN THE INDIANA STORM WATER QUALITY MANUAL.

PERMANENT SEED

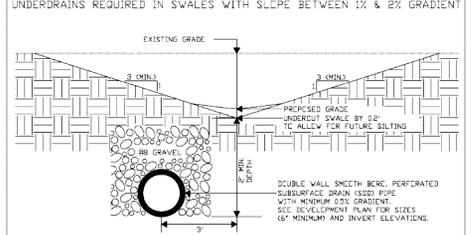
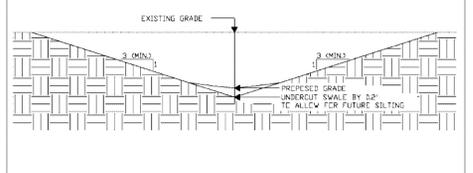


INSTALLATION PROCEDURE
1. 2" x 2" x 36" HARDWOOD OR STEEL FENCE POSTS ARE INSTALLED 6' APART (4" EXTRA STRENGTH FABRIC WITHOUT WIRE BACKING) OR 8' APART (4" WIRE BACKING), ON A SLIGHT ANGLE TOWARD THE ANTICIPATED RUNOFF SOURCE.
2. A TRENCH 4" WIDE BY 4" DEEP IS DUG ALONG THE UPHILL SIDE OF THE FENCE LINE.
3. THE SILT FENCE IS UNROLLED AND LAID OUT ALONG THE FENCE LINE.
4. A BUILT-IN ATTACHMENT CORD RUNS THROUGHOUT THE FULL LENGTH OF EACH 150' LINEAR FOOT. ONE END OF THE CORD HAS APPROXIMATELY 5' OF CORD. THE OTHER END HAS APPROXIMATELY 20' OF CORD. THE END WITH 5' OF CORD IS WRAPPED AROUND THE FIRST POST AND SECURED.
5. THE FENCE IS PULLED TO THE NEXT POST AND A 1.5" SLIT IS MADE IN THE HEM DIRECTLY ABOVE THE CORD. THE CORD IS PULLED OUT OF THE HEM AND PULLED TAUT FROM THE PRECEDING POST AND WRAPPED TWICE AROUND THE POST.
6. THE SLITTING OF THE HEM ON EACH POST IS REPEATED UNTIL THE FINAL POST IS REACHED. AT WHICH TIME THE MATERIAL IS WRAPPED AROUND THE LAST POST AND SECURED WITH THE ENCLOSED CORD.
7. AT THIS TIME THE LOWER 6" OF THE FENCE IS LAID IN THE TRENCH AND CURLED TOWARD THE EROSION SOURCE. THE TRENCH IS THEN BACKFILLED WITH SOIL.

SILT FENCE DETAIL
TOWN OF WESTFIELD, INDIANA
Boris Ayers Jeff 4/10/06 DATE
FIGURE EC-4



CONCRETE WASHOUT DETAIL
CITY OF WESTFIELD, INDIANA
DATE 7/26/08
FIGURE EC-5



TYPICAL SWALE DETAIL
TOWN OF WESTFIELD, INDIANA
Boris Ayers Jeff 4/10/06 DATE
FIGURE ST-4.3

10505 N. College Avenue
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800 | 452 - 6408
317 | 843 - 0546 fax
ALLAN H. WEIHE, P.E., L.S. - FOUNDER

WEIHE ENGINEERS
Land Surveying | Civil Engineering
Landscape Architecture

PROJECT NO. W12-0055
DATE: 11/26/12
BY: [Signature]
DESIGNED BY: [Signature]
DRAWN BY: [Signature]
CHECKED BY: [Signature]
DATE: 11/24/2012

REVISIONS AND ISSUES
REVISED PER COMMENTS FROM COUNTY HIGHWAY SURVEYOR'S OFFICE, AND HEALTH

JAMES E. SHIELDS JR. P.E. 10201393
REGISTERED PROFESSIONAL ENGINEER
No. PE10261393
EXPIRES 12/31/14
INDIANA

JAMES E. SHIELDS JR. P.E. 10201393

PREPARED FOR:
SUNDOWN GARDENS
SUNDOWN COMMERCIAL GROUP
STORMWATER POLLUTUIN PREVENTION PLAN
A part of the Southeast Quarter of Section 22, Township 19 North, Range 3 East, Washington Township, Hamilton County, Indiana.

SHEET NO. **C202**
PROJECT NO. W12-0055

SIX POINTS ROAD
N00°03'25"E 580.22'

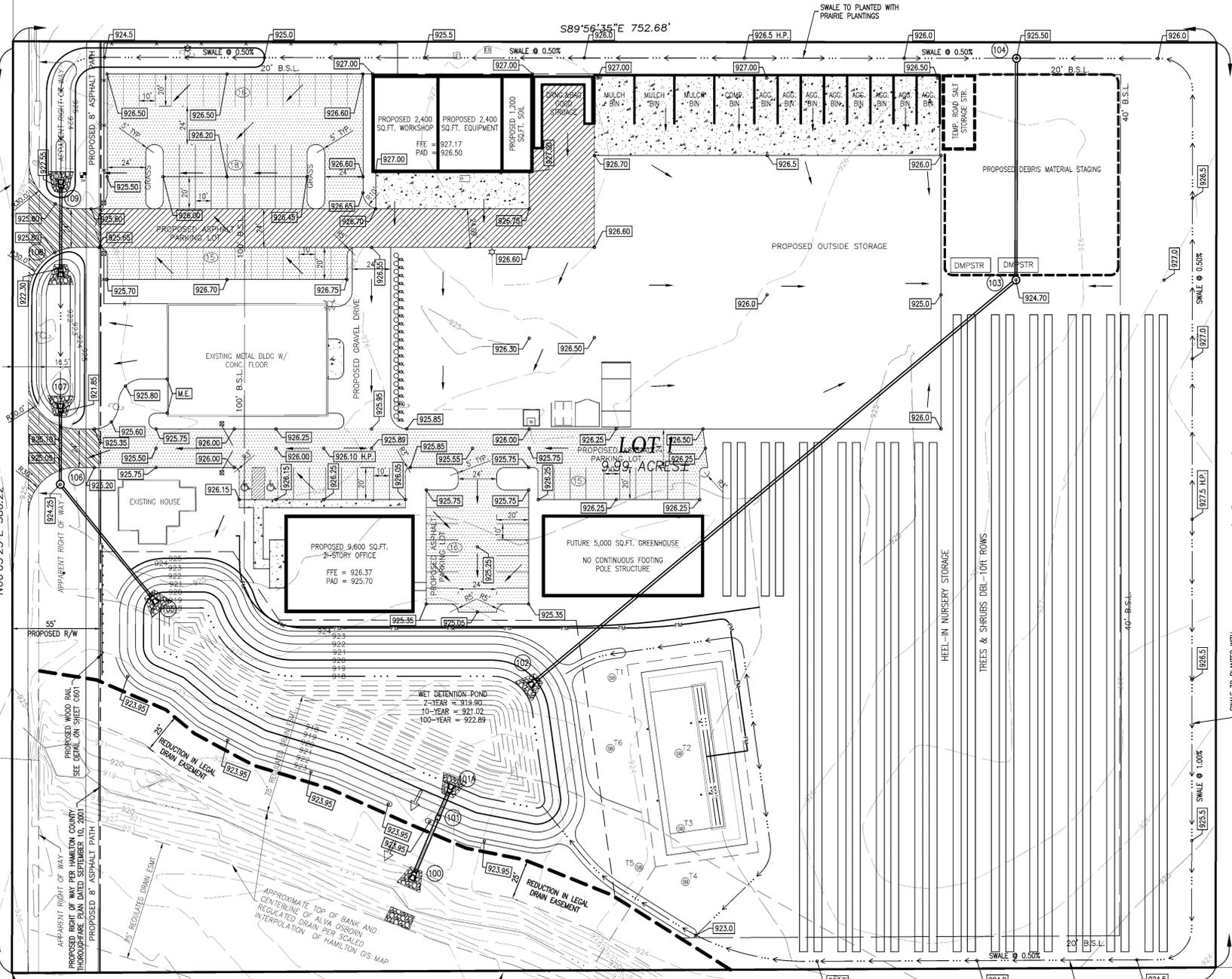
WEST LINE OF SE 1/4, SEC. 22-T19N-R3E
S 00°02'25" W (ASSUMED BASIS OF BEARING)

POINT OF BEGINNING
SOUTHWEST CORNER
SOUTHEAST QUARTER
SEC. 22-T19N-R3E

SOUTH LINE OF SE 1/4, SEC. 22-T19N-R3E
N 89°44'16"E 2648.15'

S89°44'16"W 752.69'

S00°03'25"E 576.03'



LEGEND

- RIGHT-OF-WAY LINE
- STORM SEWER LINE
- SWALE
- SANITARY SEWER LINE
- SANITARY SEWER MANHOLE
- SANITARY SEWER LATERAL
- PROPOSED WATER LINE
- FLOW DIRECTION
- EXISTING CONTOURS
- PROPOSED ELEVATION
- STORM BEEHIVE INLET
- STORM INLET
- TOP OF CASTING
- INVERT
- REINFORCED CONCRETE PIPE
- MANHOLE STRUCTURE
- DRAINAGE AND UTILITY EASEMENT
- SANITARY SEWER, DRAINAGE AND UTILITY EASEMENT
- H.C. HANDICAP RAMP
- CONCRETE END SECTION
- MEG MATCH EXISTING GRADE
- TYPICAL
- PROPOSED
- EXISTING
- R. RADIUS
- V.W. VARIABLE WIDTH
- M.F.P.S. MINIMUM EXTERIOR FLOOD PROTECTION GRADE
- ROW RIGHT-OF-WAY
- B-B BACK OF CURB
- 860.4 = PAD ELEV
- EMERGENCY FLOW ROUTE

GENERAL GRADING NOTES:

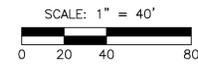
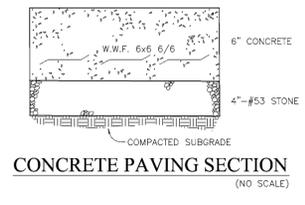
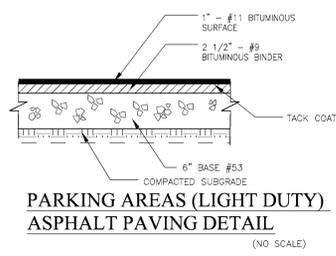
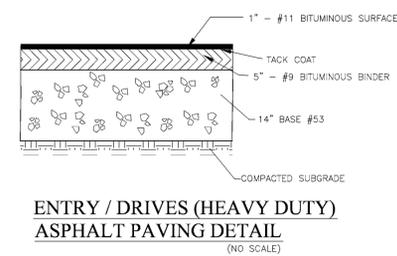
- REFER TO THE INDIANA DEPARTMENT OF TRANSPORTATION (INDOT) STANDARD SPECIFICATIONS, 1995 EDITION, FOR BASIC MATERIALS AND CONSTRUCTION METHODS. THE SECTIONS BELOW FOR VARIOUS ITEMS ARE TO CLARIFY THE INTENT OF THE REQUIREMENTS FOR THIS PROJECT. PLEASE NOTE THAT OTHER SECTIONS OF THE INDOT STANDARD SPECIFICATIONS MAY ALSO BE APPLICABLE.
- FILL MATERIAL SHALL CONSIST OF EARTH OBTAINED FROM CUT AREAS, BORROW PITS OR OTHER APPROVED SOURCES. EARTH SHALL BE FREE FROM ORGANIC MATTER AND OTHER DELETERIOUS SUBSTANCES AND LARGE ROCKS. THE FILL MATERIAL SHALL BE PLACED IN LAYERS NOT TO EXCEED SIX INCHES FOLLOWING COMPACTION. PROPER MOISTURE CONTENT OF FILL MATERIAL WILL BE SUCH TO ACHIEVE SPECIFIED COMPACTION DENSITY. ALL FILL BENEATH PAVED AREAS, FLOOR SLABS AND FUTURE BUILDINGS SHALL BE COMPACTED TO AT LEAST 95% OF THE MAXIMUM DRY DENSITY PER ASTM D-1557. FIELD COMPACTION TEST SHALL BE RUN ON EACH LIFT, IN FILL SECTIONS, AND THE REQUIRED COMPACTION ON EACH LIFT SHALL BE IN ACCORDANCE WITH INDOT SECTION 211.
- MAXIMUM LAWN SLOPE IS 3:1.
- THE CONTRACTOR SHALL CONTACT ALL UTILITY COMPANIES TO LOCATE MAINS, CONDUITS, SERVICE LINES, ETC. IN THE AFFECTED CONSTRUCTION AREA. EXISTING UTILITY STRUCTURES ARE SHOWN HERE IN ACCORDANCE WITH AVAILABLE INFORMATION. THE LOCATION AND PROTECTION OF UTILITY STRUCTURES, THEIR SUPPORT AND MAINTENANCE DURING CONSTRUCTION (IN COOPERATION WITH APPLICABLE UTILITY COMPANY) IS THE EXPRESSED RESPONSIBILITY OF THE CONTRACTOR.
- ALL SPOT ELEVATIONS ARE TO FINISHED GRADE.
- COMPACTED "B" BORROW BACK FILL RED'D. OVER ALL UTILITIES IN PAVED AREAS.
- ALL GRADES AT BOUNDARY SHALL MEET EXISTING.
- ANY PART OF SANITARY OR STORM SEWER TRENCHES RUNNING UNDER OR WITHIN 5' OF PAVEMENT TO BE BACKFILLED WITH GRANULAR MATERIAL.
- ALL CONSTRUCTION ON THIS SITE TO BE PERFORMED IN COMPLIANCE WITH O.S.H.A. STANDARDS FOR WORKER SAFETY.
- THE CONTRACTOR SHALL CONFIRM ALL EARTHWORK QUANTITIES PRIOR TO THE START OF CONSTRUCTION. IF AN EXCESS OR SHORTAGE OF EARTH IS ENCOUNTERED, THE CONTRACTOR SHALL CONFIRM WITH THE OWNER AND ENGINEER THE REQUIREMENTS FOR STOCKPILING, REMOVAL OR IMPORTING OF EARTH.
- PROVIDE POSITIVE DRAINAGE WITHOUT PONDING IN ALL AREAS AFTER INSTALLATION. CONTRACTOR TO TEST FOR AND CORRECT ANY PONDING CONDITIONS.
- VERTICAL CURVES, WITH A MINIMUM LENGTH OF 50', SHALL BE USED WHERE POSSIBLE BETWEEN VERTICAL CHANGES IN DIRECTION (SLOPE) TO ALLOW FOR POSITIVE DRAINAGE AND SMOOTH TRANSITIONS.

NOTES:

- CONTRACTOR SHALL VERIFY SITE SOIL BALANCE REQUIREMENTS. EXCESS/DEFICIENT MATERIAL QUANTITIES SHALL BE FIELD ADJUSTED. ADJUSTMENTS IN FINAL GRADES AS SHOWN SHALL BE FIELD ENGINEERED AS REQUIRED, AND AS APPROVED BY OWNER AND THE ENGINEER. GRADING INTENT AS SHOWN SHALL BE MAINTAINED. EXCESS SOIL SHALL BE REMOVED FROM THE SITE.
- CONTRACTOR TO INSTALL CONCRETE CRADLES WHEN THE VERTICAL SEPARATION (AS MEASURED FROM THE EXTERIOR OF THE PIPES) BETWEEN SANITARY SEWER FACILITIES, WATER MAIN, AND STORM SEWERS IS 18" OR LESS.
- GRANULAR BACKFILL TO BE USED FOR ALL UTILITY AND SEWER - STREET CROSSINGS.
- PIPE CROSSINGS SHALL BE TYPE "B" BORROW. TYPE "B" BORROW SHALL MEET 1/2" OR GREATER NORMAL SIZE.

LEGEND

- CONCRETE
- HEAVY DUTY ASPHALT
- LIGHT DUTY ASPHALT
- ASPHALT PAVING R/W



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WEIHE ENGINEERS
Land Surveying | Civil Engineering
Landscape Architecture

PROJECT NO.	W12-0055
DWG. NAME	C300-007708-Bldg
DESIGNED BY	JES
DRAWN BY	MEZ
CHECKED BY	JES
DATE	11/24/2012

REVISIONS AND ISSUES

NO.	DATE	BY	DESCRIPTION
1	11/26/12	JAM	ISSUE FOR PERMITS

REVISED PER COMMENTS FROM COUNTY HIGHWAY SURVEYOR'S OFFICE, AND HEALTH

JAMES E. SHIELDS JR. P.E. 10201333



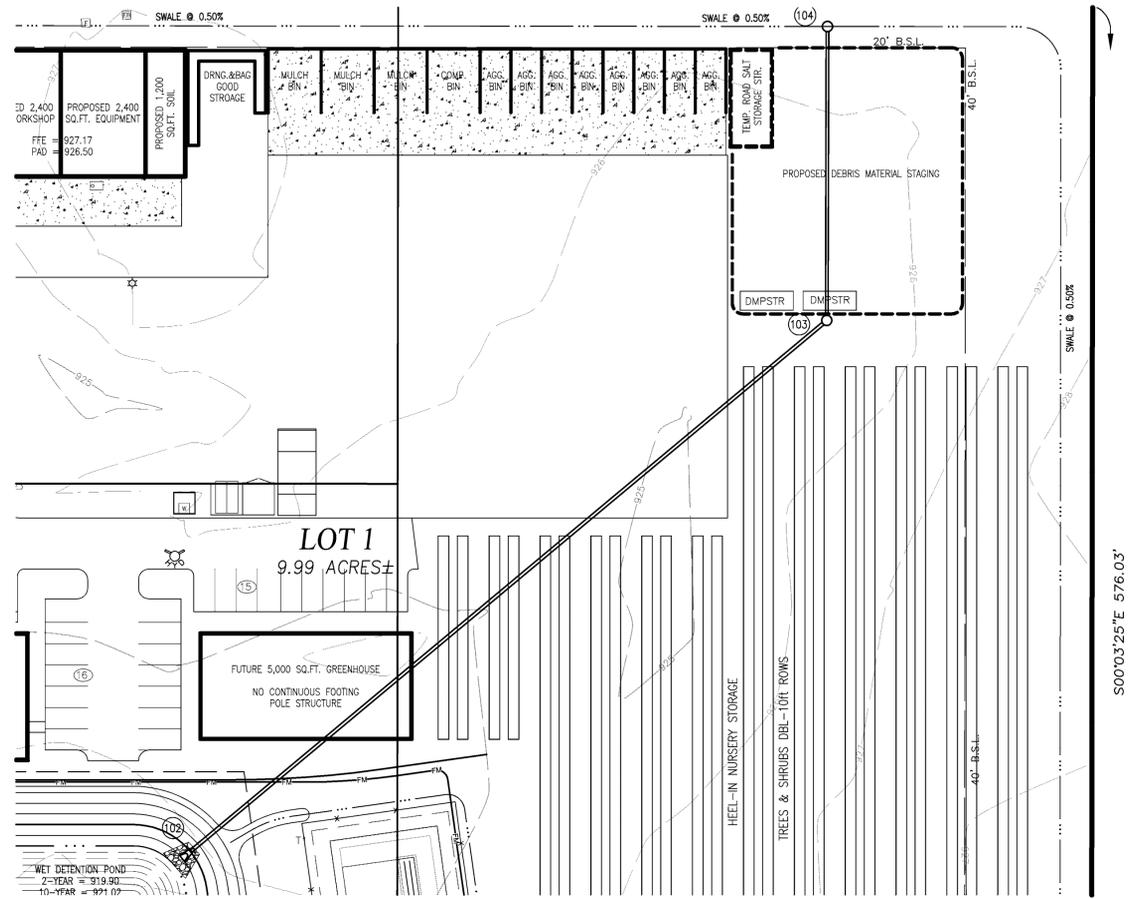
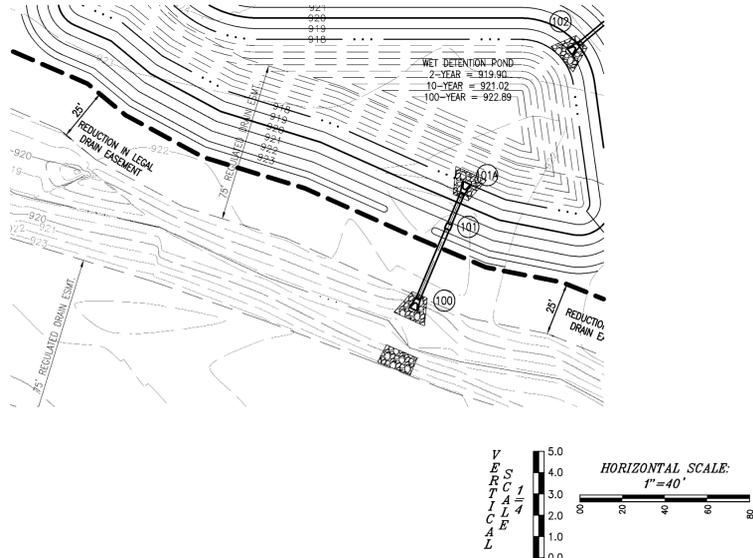
JAMES E. SHIELDS JR. P.E. 10201333

PREPARED FOR:
SUNDOWN GARDENS
SUNDOWN COMMERCIAL GROUP
DEVELOPMENT PLAN
A part of the Southeast Quarter of Section 22, Township 19 North, Range 3 East, Washington Township, Hamilton County, Indiana.

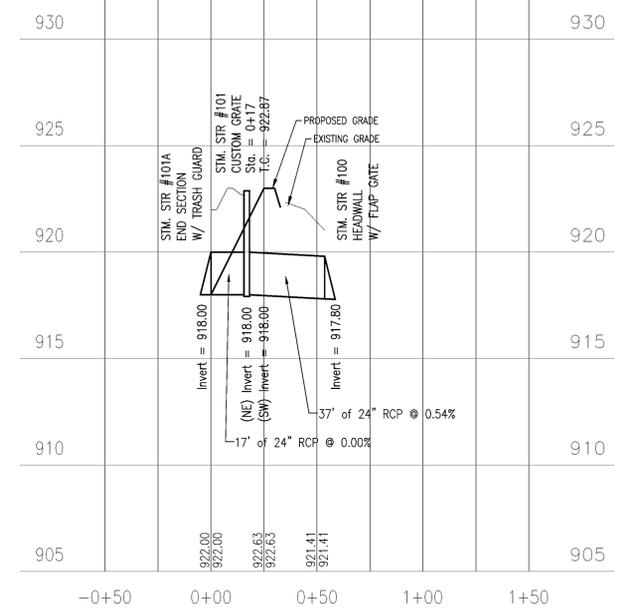
SHEET NO.
C300
PROJECT NO.
W12-0055

CONSTRUCTION PLANS DATED: 11/26/2012

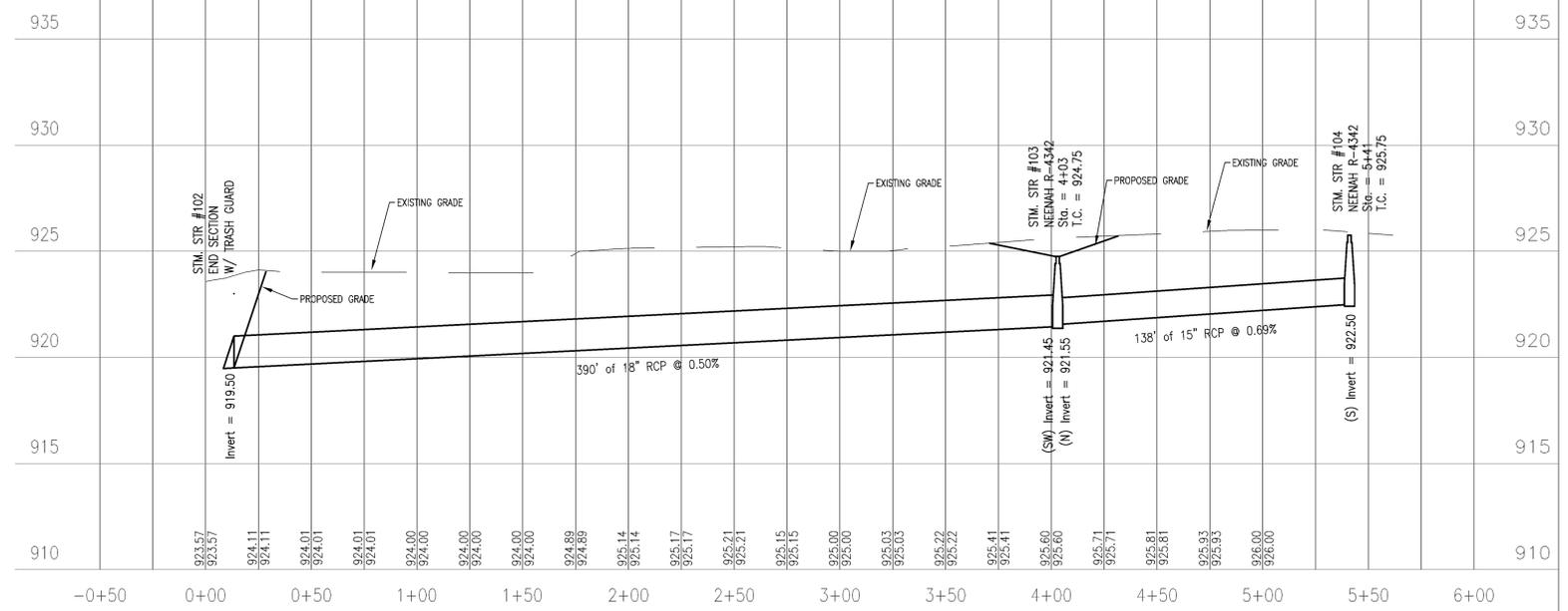
LOCATION: 11/20/12 W 120055 Engineering\Design\Concept\C300-120055001.dwg
DATE/TIME: December 21, 2012 10:30am
PLOT/DWG: miller



STORM 100-101



STORM 102-104



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weihe.net
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800 | 452 - 6408
317 | 843 - 0546 fax
ALLAN H. WEIHE, P.E., L.S. - FOUNDER

WEIHE ENGINEERS
Land Surveying | Civil Engineering
Landscape Architecture

PROJECT NO.: W12-0055
DWG. NAME: C400-TOPOGRAPHY
DESIGNED BY: JES
DRAWN BY: MIZ
CHECKED BY: JES
DATE: 11/24/2012

REVISIONS AND ISSUES
REVISED PER COMMENTS FROM COUNTY HIGHWAY SURVEYOR'S OFFICE, AND HEALTH



JAMES E. SHIELDS JR. P.E. 10201333

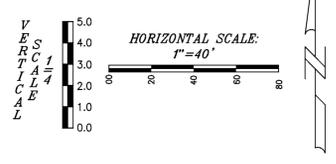
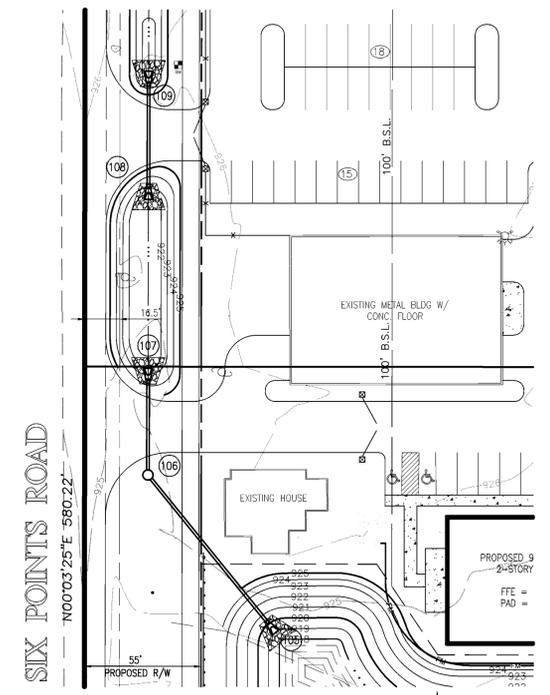
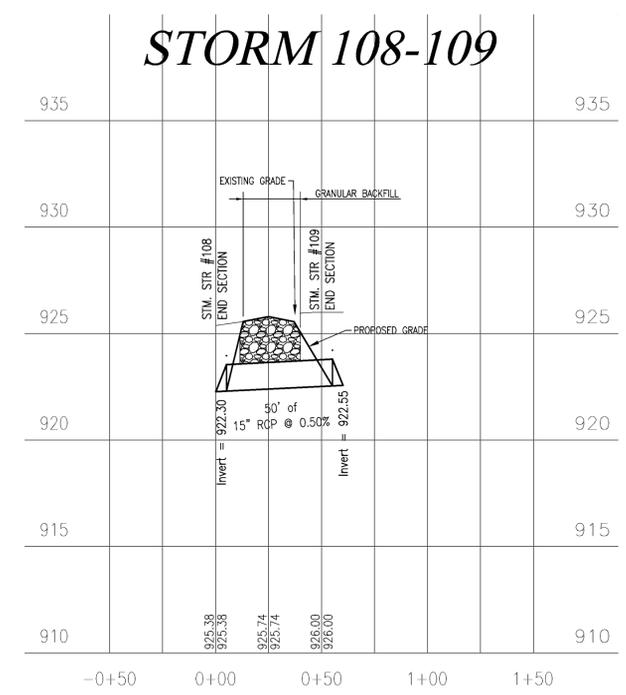
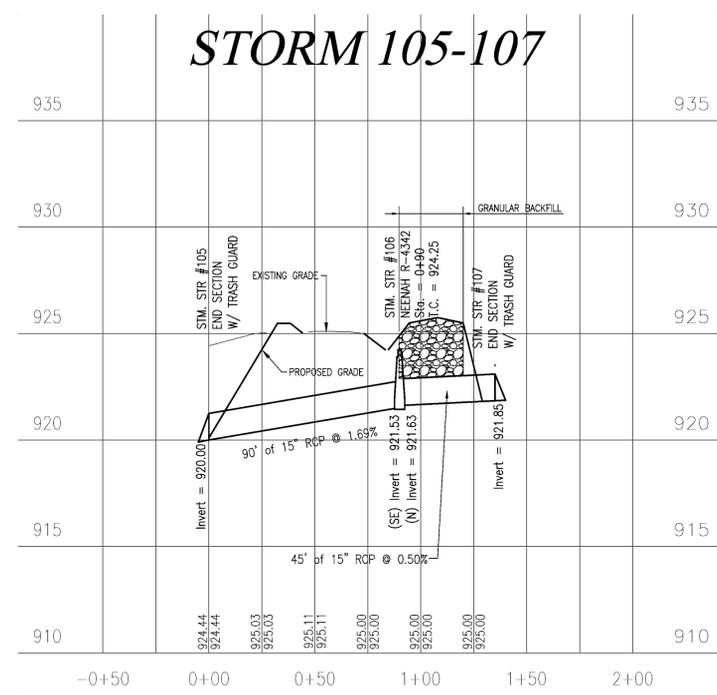
SUNDOWN GARDENS
SUNDOWN COMMERCIAL GROUP
STORM SEWER PLAN AND PROFILE SHEET
A part of the Sundown Quarter of Section 22, Township 19 North, Range 3 East, Washington Township, Hamilton County, Indiana.

PREPARED FOR:
SUNDOWN GARDENS
SHEET NO. **C400**
PROJECT NO. **W12-0055**

CONSTRUCTION DATED: 11/26/2012

LOCATION: I:\2012\W120055\Engineering\Design\Concept\C400-120055STW.dwg
DATE/TIME: December 21, 2012 - 10:50am
PLOT/DWG: mllg

LOCATION: I:\2012\W120055\Engineering\Design\Sheet\C400-120055STM.dwg
 DATE/TIME: December 21, 2012 - 10:50am
 PLOTTED BY: miller



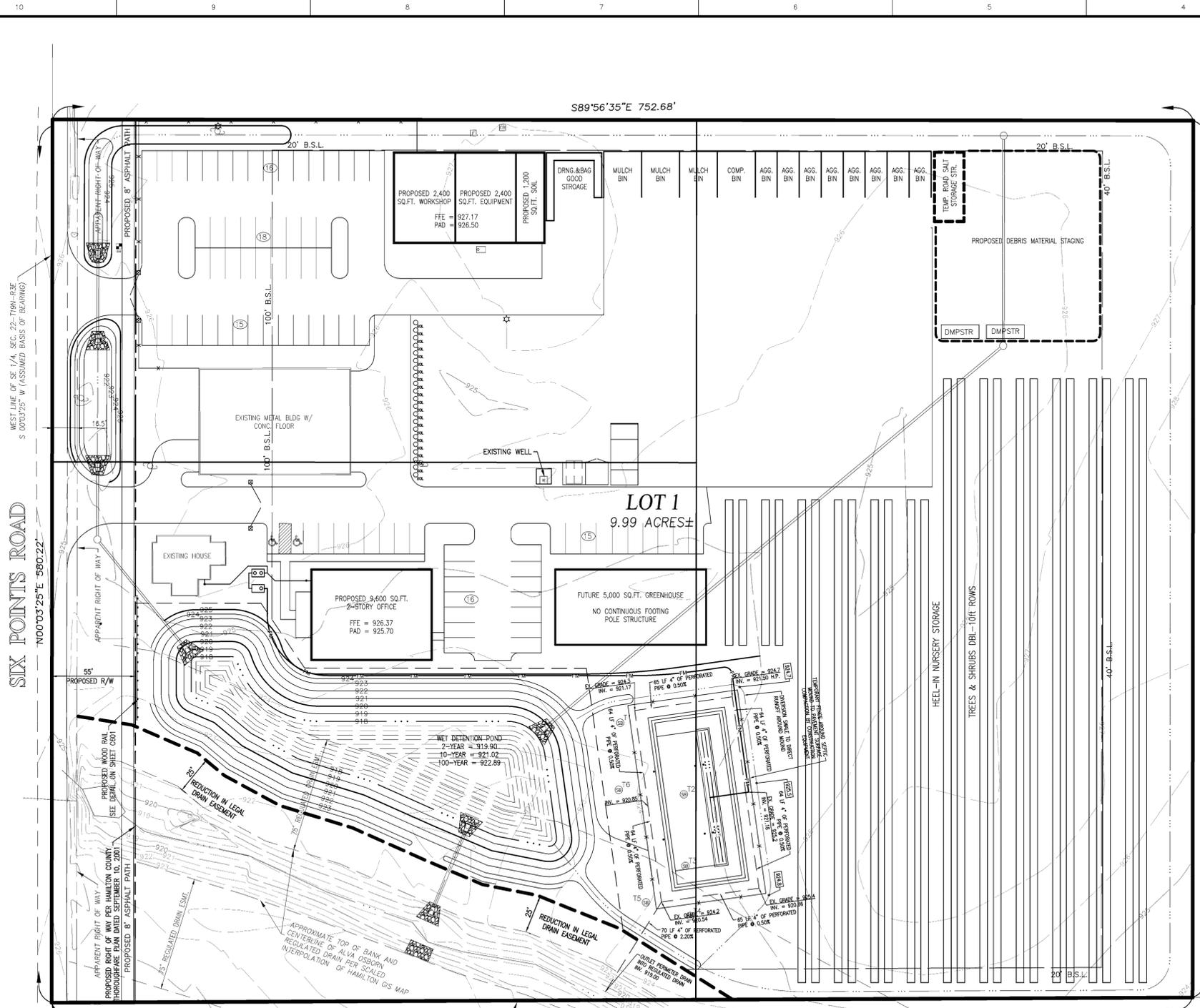
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 LOCATION SERVICE TWO (2) WORKING
 DAYS BEFORE COMMENCING WORK.

CONSTRUCTION PLANS DATED: 11/26/2012

<p>WEIHE ENGINEERS Land Surveying Civil Engineering Landscape Architecture</p>	<p>PROJECT NO.: W12-0055 DWG. NAME: C400-120055P DESIGNER: JES DRAWN BY: METZ CHECKED BY: JES DATE: 11/24/2012</p>
	<p>10505 N. College Avenue Indianapolis, Indiana 46280 weihe.net 317 846 - 6611 800 452 - 6408 317 843 - 0546 fax ALLAN H. WEIHE, P.E., L.S. - FOUNDER</p>
<p>REVISIONS AND ISSUES REVISED PER COMMENTS FROM COUNTY HIGHWAY SURVEYOR'S OFFICE, AND HEALTH</p>	<p>DATE: 11/26/12 BY: JAM</p>
<p>JAMES E. SHIELDS, JR. REGISTERED PROFESSIONAL ENGINEER No. PE10261333 State of Indiana</p>	<p>JAMES E. SHIELDS JR. P.E. 10201333</p>
<p>SUNDOWN GARDENS SUNDOWN COMMERCIAL GROUP STORM SEWER PLAN AND PROFILE SHEET A part of the Sundown Quarter of Section 22, Township 19 North, Range 3 East, Washington Township, Hamilton County, Indiana.</p>	<p>PREPARED FOR: 811 Know what's below. Call before you dig.</p>
<p>SHEET NO. C401</p>	<p>PROJECT NO. W12-0055</p>



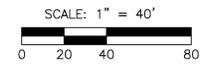
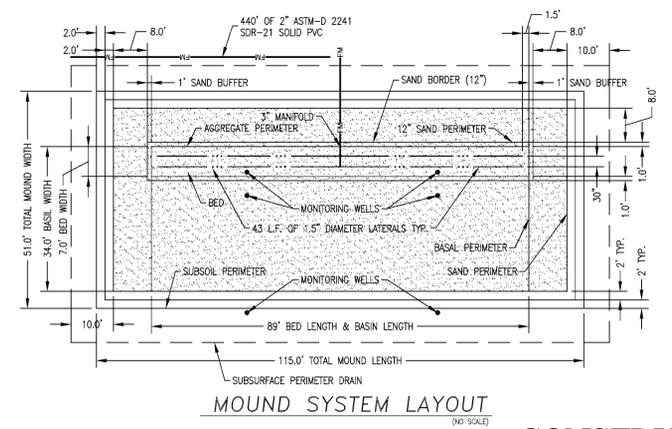
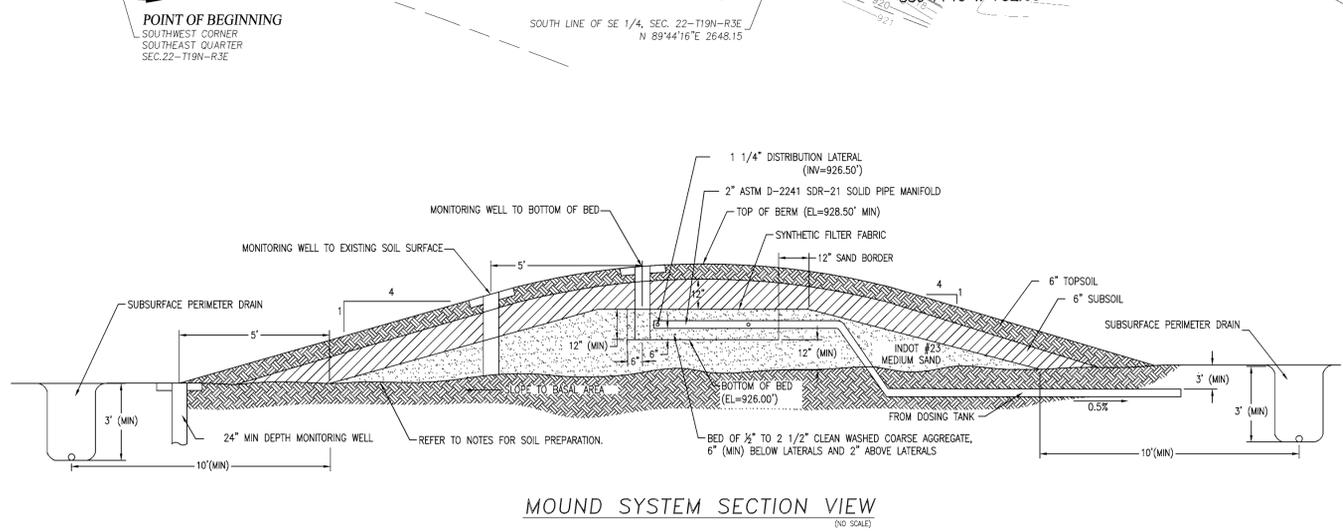
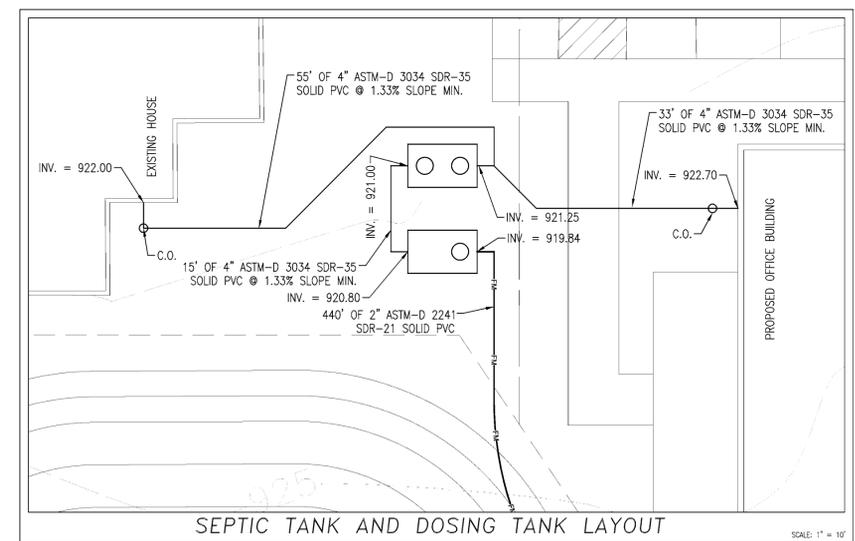
LAND DESCRIPTION:

Tract #1
Description of Real Estate:
Part of the Southeast Quarter of Section 22, Township 19 North, Range 3, East Hamilton County Indiana being described as follows:
Beginning at the railroad spike at the Southwest corner of the Southeast Quarter of Section 22, Township 19 North, Range 3 East; thence on the West line of said Southeast Quarter North 00 degrees 03 minutes 25 seconds East (assumed bearing) 355.22 feet to the mag nail, thence South 89 degrees 56 minutes 35 seconds East 425.00 feet to a 5/8" steel rebar with a yellow cap stamped "Miller Surveying"; thence South 00 degrees 03 minutes 25 seconds West 352.85 feet to a mag nail on the South line of said Southeast Quarter; thence on said South line South 89 degrees 44 minutes 16 seconds West 425.00 feet to the point of beginning containing 3.45 acres, more or less.

Tract #2
Description of Real Estate:
Part of the Southeast Quarter of Section 22, Township 19 North, Range 3 East Hamilton County Indiana being described as follows:
Commencing at the railroad spike at the Southwest corner of the Southeast Quarter of Section 22, Township 19 North, Range 3 East; thence on the West line of said Southeast Quarter North 00 degrees 03 minutes 25 seconds East (assumed bearing) 355.22 feet to the mag nail and the point of beginning of this description; thence continuing on said West line North 00 degrees 03 minutes 25 seconds East 225.00 feet; thence South 89 degrees 56 minutes 35 seconds West 352.85 feet to a mag nail on the South line of said Southeast Quarter; thence on said South line South 89 degrees 44 minutes 16 seconds West 225.00 feet to a 5/8" steel rebar with a yellow cap stamped "Miller Surveying"; thence North 89 degrees 56 minutes 35 seconds West 425.00 feet to the point of beginning containing 2.19 acres, more or less.

Tract #3
Description of Real Estate:
Part of the Southeast Quarter Section 22, Township 19 North, Range 3 East Hamilton County Indiana being described as follows:
Commencing at the railroad spike at the Southwest corner of the Southeast Quarter of Section 22, Township 19 North, Range 3 East; thence on the South line of said Southeast Quarter North 89 degrees 44 minutes 16 seconds East (assumed bearing) 425.01 feet to a 5/8" steel rebar with a yellow cap stamped "Miller Surveying"; thence on said West line North 00 degrees 03 minutes 25 seconds East 327.68 feet to a 5/8" steel rebar with a yellow cap stamped "Miller Surveying"; thence parallel with West line of said Southeast Quarter South 00 degrees 03 minutes 25 seconds West 576.03 feet to a 5/8" steel rebar with a yellow cap stamped "Miller Surveying"; thence on the South line of said Southeast Quarter; thence on said South line South 89 degrees 44 minutes 16 seconds West 327.68 feet to the point of beginning, containing 4.34 acres, more or less.

- SEWAGE DISPOSAL SYSTEM SPECIFICATIONS (CHAMBER SYSTEM)**
- Required MOUND system:
 - Mound Bed Area = 625 SF (Width = 7', Length = 89')
 - Network Lateral Spacing = 30" center to center of lateral
 - Mound Basal Area = 3000 SF (Width = 34')
 - 1-1,500 gallon 2-compartment septic tank minimum with access riser and double lid
1-1,250 gallon dosing tank minimum with hatch to allow removal of pump for maintenance. Access of hatch or riser to be at ground level.
 - Piping specifications
 - 88' of 4" ASTM-D 3034 SDR-35 solid plastic line from house to septic tank
 - 15' of 4" ASTM-D 3034 SDR-35 solid plastic line from septic tank to dosing tank
 - 440' of 2" ASTM-D 2241 SDR-21 solid PVC from dosing tank to distribution box
 - 172 linear feet of 1.5" diameter lateral typical, not exceeding 100 linear feet each
 - Pump Specifications
Zoeller Model 151, 1/3 HP, 115 volt, 1 phase



CONSTRUCTION PLANS DATED: 11/26/2012

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800 452-6408
317 843-0546 fax
ALLAN H. WEIHE, P.E., L.S. - FOUNDER

WEIHE ENGINEERS
Land Surveying | Civil Engineering
Landscape Architecture

PROJECT NO.:	W12-0055
DWG. NAME:	C500-PROPOSED
DESIGNED BY:	AW
DRAWN BY:	MEZ
CHECKED BY:	JES
DATE:	11/24/2012

REVISIONS AND ISSUES

NO.	DATE	BY	DESCRIPTION
1	11/26/12	AW	REVISED PER COMMENTS FROM COUNTY HIGHWAY SURVEYOR'S OFFICE, AND HEALTH DEPARTMENT

JAMES E. SHIELDS, JR.
REGISTERED PROFESSIONAL ENGINEER
No. PE10261388
Professional Engineer
Indiana
A PROFESSIONAL ENGINEER

JAMES E. SHIELDS, JR. P.E. 10201388

PREPARED FOR:
SUNDOWN GARDENS
SUNDOWN COMMERCIAL GROUP
SEPTIC SEWER DESIGN

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LOCATION SERVICE TWO (2) WORKING
DAYS BEFORE COMMENCING WORK.

SHEET NO. **C500**
PROJECT NO. **W12-0055**

LOCATION: 11/20/12, W 120055 Engineering\Design\Concept\C500-120055SEP.dwg
DATE/TIME: December 21, 2012 - 10:30am
PLOT/DWG: mlling

PART 1 - GENERAL

1.01 SCOPE OF WORK

A. The CONTRACTOR shall be responsible for installing all wastewater treatment upgrades according to the conditions and requirements listed below. It is the CONTRACTOR'S responsibility to call the local underground utility protection agency a minimum of 72 hours before digging.

B. All wastewater equipment shall be furnished and installed with all piping, valves, pumps, treatment unit(s), and controls to provide a complete functional treatment system.

1.02 ELECTRICAL

A. The CONTRACTOR shall provide and install rigid, PVC conduit and wiring adequately sized for the application between each disconnect switch, and the main power breaker, with all disconnect switches required to provide and operate the system.

B. One (1) lockable main disconnect switch shall be provided for each control panel and shall be sized per NEC requirements for the amperage required.

C. All metal parts exposed above ground shall be grounded to a 3/4-inch diameter copper clad, ground driven rod with #8 AWG stranded copper ground wire - PUMP SUPPLIER TO VERIFY.

D. The CONTRACTOR shall wire in all systems to provide a complete, functioning system.

1.03 BASIS OF DESIGN

A. The new proposed system will utilize one 1,500 gallon, 2-compartment septic tank, a 1,250 gallon dosing pump station. A MOUND system for final effluent disposal. Maximum daily design flow rate is 750 GPD for a 3 brd home and a 15-employee office building.

B. One (1) 1,500 gallon, 2-compartment McCready Concrete Products septic tank will be used for primary treatment of waste for proposed home. The tank shall be constructed with risers and covers to grade.

C. One (1) 1,250 gallon, Harford Concrete Products tank will be constructed with risers and covers to grade for use as a dosing tank.

The tank will house a Zoeller simplex pump station which will volume dose the trench system. The pump will be Zoeller Model 153, 3/4 HP, 115V, 1 phase. Pump is sized for 42 GPM @ 25 TDH.

Pump shall dose 256 GAL/DOSE, 4 times per day.

D. Electrical Service:

(1) One (1) Dosing pump - 115 volt, 20 amps each
 (2) Alarm/control circuits - 115 volt, 15 amps each panel

E. The MOUND system shall meet the following minimum requirements.

1. Mound Bed Area = 625 SF (Width = 7', Length = 89')
 2. Network Lateral Spacing = 30" center of lateral to center of lateral
 3. Mound Basal Area = 3000 SF (Width = 34')

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. Zoeller Pump Company	PRODUCT SUPPLIER:
B. BBC Pump Company	CLEAR WATER ENVIRONMENTAL SYSTEMS, INC.
C. Septic Products, Inc.	17220 HARGER COURT
D. Hydromatic Pump	NOBLESVILLE, IN 46060
	(317) 774-0300 PHONE

2.03 PRIMARY TREATMENT - SEPTIC TANKS

A. Minimum septic tank volume is 1,500 gallons. All tanks must be watertight. All seams, joints, openings, and pipe fittings must be watertight. After installation and backfilling, a water tightness test comprised of filling the dosing tank with water will be required. The tank shall be filled two inches into the riser and allowed to sit. After 24 hours, the water level should be raised back to the 2 inch level inside the riser. The tank must maintain the filled water level for 2 hours to be considered acceptable. Coating the inside and outside of a concrete tank for water-tightness is acceptable and advised.

B. Tank material must be concrete or fiberglass. All concrete tanks must conform to ASTM C1227-93a standard. Metal tanks are NOT considered an equal. Septic tanks shall be pre-cast and brought to the site. Tanks w/ 2-compartment shall be used. Length of septic tank must be at least twice the width of the tank. Tank must have a baffled 4" inlet and filtered 4" outlet. Hydraulic drop from the inlet to outlet must be 3". Outlet must draw from 35% to 45% of tank liquid depth. Access openings must be a minimum 18" diameter. Suitable anchoring devices must be used in areas with a high water table.

C. Zoeller 24" diameter Septic Tank Riser, model 172, shall be used to bring the access opening to grade. The seam between the tank and riser must be watertight. The preferred method of attaching the riser to the tank is casting in place or using a Zoeller model 172-0048 30" diameter Seal Ring. The riser and lid combination must be able to support a 2,500 lb. wheel load. Plastic or poly risers should not be considered equal. The riser must be adjustable in the field for cut off 3" above grade. Concrete risers should not be considered equal. The lid must have a green non-skid finish for blending into the homeowner's landscape. Lid shall have a watertight connection to the riser pipe.

2.04 DOSE TANKS

A. Minimum tank volume is 1,250 total gallons. Single-compartment. All tanks must be watertight. All seams, joints, openings, and pipe fittings must be watertight. After installation and backfilling, a water tightness test comprised of filling the dosing tank with water will be required. The tank shall be filled two inches into the riser and allowed to sit. After 24 hours, the water level should be raised back to the 2 inch level inside the riser. The tank must maintain the filled water level for 2 hours to be considered acceptable. Coating the inside of a concrete tank for water-tightness is acceptable and advised.

B. Tank material must be concrete, polyethylene, or fiberglass. All concrete tanks must conform to ASTM C1227-93a standard. Metal tanks are NOT considered an equal. Dose / Recirculation tank shall be pre-cast and brought to the site. Access openings must be a minimum opening to accommodate a duplex pump station for easy pump removal. Access openings must come completely to finish grade.

C. The dose tank cover shall be constructed of 0.250-inch thick finished aluminum diamond plate with 300 series stainless steel hardware. The access hatch shall have a drop handle and locking staple. The hatch shall be held open in the vertical position by means of a hold open arm of corrosion resistant design. The cover shall be mounted to the dosing tank riser with at least six (6) 300 series stainless steel fasteners of at least 3/8-inch in diameter.

D. Suitable anchoring devices must be used in areas with a high water table.

2.05 VOLUME DOSED CONTROL PANELS AND LEVEL CONTROLS

A. The CONTRACTOR shall furnish and install a completely pre-wired automatic control panel of the type utilizing float switch control for pump control and alarm indication.

B. The panel shall be of the duplex, volume dosing configuration. Mercury float switches located in the wet well will control the pump sequence. Level controls will be set up in the wet well in the following order from lowest water level to highest:

1st level - Redundant Pump OFF
 2nd level - Pump ON
 3rd level - High water alarm

C. The control panel shall be housed in a NEMA 4X thermoplastic enclosure. Panel shall include a visible and audible high water alarm with dry auxiliary contacts, IEC rated motor contactor, pump disconnect switch, control power disconnect switch, selector switches, and pilot lights. The enclosure shall have a hinged front cover with lockable hasp. The visual high water alarm shall be a top mounted red beacon with 360-degree visual check. Separate fused control / alarm and pump circuits must be provided. A wiring schematic shall be provided and stored in a plastic pocket provided in the enclosure. The schematic is to be an exact representation of the panel circuitry identifying the terminal locations for the float switch, pumps, and incoming power connections. All ground wires shall be terminated at the grounding lug furnished inside the enclosure. An elapsed time meter and cycle counter shall track the events of each pump.

D. Provide three (3) UL listed narrow-angle sensor switches with normally open contact; which closes as the float tips slightly above the horizontal plane. Float switches must be rated at 5 amps, with 2 conductor 18-gauge cable. Float housing to consist of high impact corrosion resistant PVC. Mounting type shall be of an external cable weight where the switches shall be suspended from above with a cable bracket. The float switch cable length shall be 15-feet.

E. Detailed Control Panel Operation

1. Operation can begin after the following:

- Correct voltage is supplied to the panel
- A secure ground is supplied to the panel
- Pump is connected correctly to the panel per wiring diagram
- Panel circuit breakers are closed
- Floater are installed properly
- Pump HOA switches are set to the Auto position
- Control On/Off switch is set to On.

2. The control panel is designed to use with THREE floats. The lowest float in the dosing tank is the Pump Off. It is set at the 13" off the bottom of the tank. The next higher float is the Lead Pump ON. The next float is the High Water Alarm. NORMAL OPERATION: When the Pump Off float is closed, the first pump will be ready to energize. The pump will continue to run in the normal operation as long as the water level is between the Pump Off and Pump ON floats.

3. In the event the liquid level continues to rise, the High Water Alarm float will be closed. When the High Water Alarm float closes 1) the external high-water light will illuminate, 2) the audible high-water horn will sound, and 3) the auxiliary dry contacts will close. Flipping the alarm silence switch will silence the audible high-water horns. The horn silence relay automatically resets the alarm after the high water condition has been resolved.

4. In the event the water level becomes low enough to open the Pump Off float, the pump will be shut off. Further pump action will not resume until the liquid elevation has returned to the normal operation level.

5. Elapsed time meters and pump cycle counters will record pump events.

F. Alarm Conditions: Alarm conditions could occur because of the following - (note: not an exhaustive list)

- Abnormally high water level in pump tank - pump not operating properly, too much inflow, timer settings incorrect, shut off valves incorrectly adjusted or closed, float switches not operating properly, restriction in discharge line

2.07 SYSTEM PIPING, FITTINGS, AND VALVES

A. PVC pipe schedule: Gravity sewer, PVC schedule 35 - ASTM D-2665 or PVC schedule 40 - ASTM D-1785 Force main and air lines, SDR-21 - ASTM D-2241

B. PVC piping and fittings as noted on drawings. All isolation valves 2-inch in diameter and smaller shall be PVC ball valves, unless otherwise noted.

2.08 FLOOD DOSED SYSTEM SIMPLEX PUMP STATION

A. Submersible pump shall be rated at 1/3 H.P., 115 volts, 1 phase, 60 HZ, 3450 RPM. The unit shall produce 42 GPM at 25 feet of TDH. Pumps shall have a 1-1/2-inch discharge. Pumps shall be capable of handling effluent. The pump shall be non-overloading throughout the length of the curve and be capable of operating un-submerged without damage to the pump. The reserve service factor shall be a minimum of 1.15. The submersible pump shall pass a 1/2-inch spherical solid. The submitted performance curve shall show the flow and head capacity of the pump.

B. Each pump shall be of the close-coupled U.L. Listed model 153 submersible pump as manufactured by Zoeller Company of Louisville, KY. The castings shall be constructed of powder coated epoxy class 25 cast iron. All fasteners exposed to the liquid must be 300 series stainless steel. The motor shall be protected on the lower side with a mechanical seal arrangement, with each seal having a separate spring assembly. The upper and lower bearings shall be capable of handling all thrust loads. The oil filled motor shall be a Class B insulated NEMA B design. At maximum load, the winding temperature will not exceed 220 degrees Fahrenheit un-submerged. Since oil filled motors are not capable of dissipating heat, they shall not be considered equal. Single-phase motors shall include an integral thermal overload switch. The top cap shall have a stainless steel lifting handle. Inlet screens or strainers are prohibited.

C. Each pump shall run in liquid before being shipped. It shall be checked at its maximum running point for performance, amps, grounding, winding insulation integrity, and water tightness

D. The pump shall be supplied with 10' of multi-conductor SO type power cord. The power cord shall enter the pump junction box through a liquid tight sealing gland. Water sealing and strain relief must be separated. A streamlined PVC cable guard shall protect the power cord.

E. Components required for repair of the pump shall be readily available within 24 hours. Special tools shall not be required to service the pump. A network of service stations shall be available nationwide in those cases where service requirements are beyond the scope of in-house service mechanics.

F. A water tight NEMA 4X junction box suitable sized and constructed to accept and seal all float switches and pump cords located in the basin.

GENERAL NOTES

- There shall be a mandatory pre-construction meeting with the Hamilton County Health Department prior construction of any part of the septic system.
- The site must be protected from all compacting, grading, and/or filling prior to installation of the site may be rendered useless.
- Construction of septic system will commence when soils are dry.
- System was designed and shown with the intention of the laterals being installed at minimum depths and therefore more permeable soils.
- No clay fill materials will be placed over absorption field.
- Absorption field shall be finish graded to obtain positive surface drainage away from the field. Any finish grading done in area of absorption field will be done with light equipment.
- No compaction from construction traffic to be allowed in absorption field area. It is suggested the area be isolated by fencing or other means.
- Existing elevations shown should be verified before construction begins.
- Design shown is based on elevations shown.
- Septic system design was based upon Hamilton County Health Department recommendations.
- Following installation and prior to back filling of septic system trenches, Hamilton County Health Department shall be notified for inspection.
- Surfaces, connections, and accessories to all tanks are to be sealed watertight to prevent water leakage into system.
- Mound bed shall be level along their length.
- The perimeter drain trench surrounding the absorption field shall be backfilled a minimum of 12" with "L" coarse gravel, and to a point no more than six inches from the ground surface.
- No septic tank or absorption field may be constructed closer than 10' to any property line, dwelling, water line, or structure.
- Maintain a 50" separation from any private water supplies, including any on neighboring properties.
- Effluent sewer entering the inlet end must be at least 8" above the trench infiltrative surface (top inlet on the multiple endplate)

DESIGN DATA:

- EARTH COVER 5 FT. MAX.
- NO CAR OR TRUCK TRAFFIC OVER UNIT
- NO GROUND WATER
- CONCRETE MINIMUM COMPRESSIVE STRENGTH
F_c = 4,500 PSI @ 28 DAYS
- REINFORCEMENT STEEL: ASTM A706,
F_y = 60,000 PSI
- DESIGN SPECIFICATIONS - ACI 318

CASTING WEIGHTS:

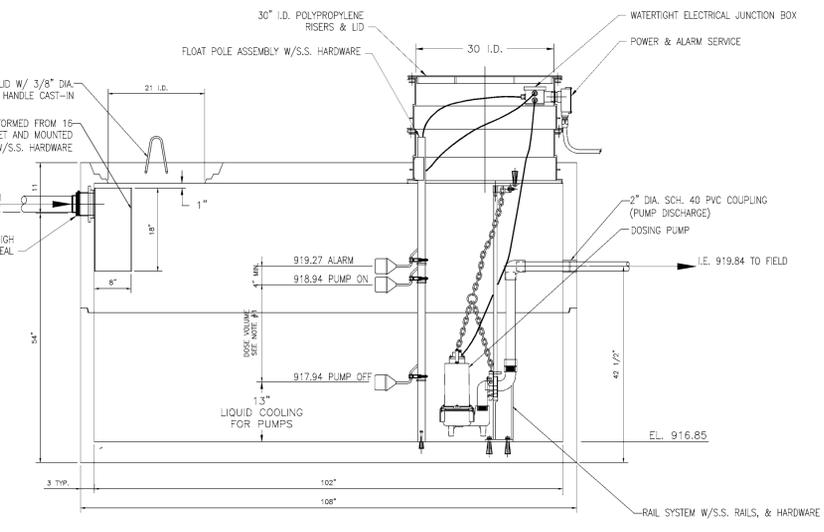
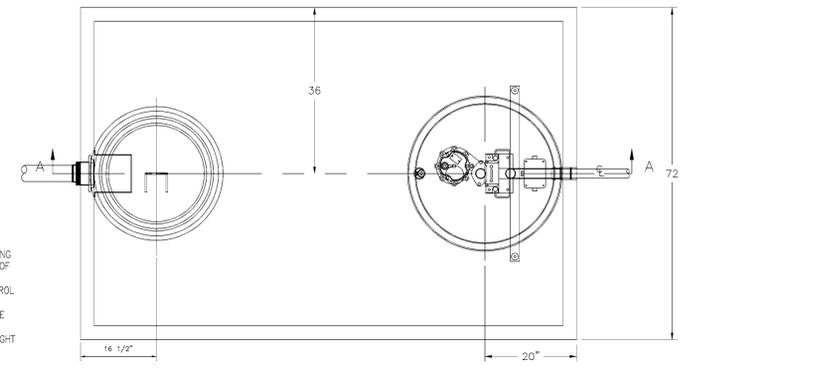
TOP CASTING.....5,660 LBS.
 PUMP CASTING.....5,660 LBS.
 BOTTOM CASTING.....5,872 LBS.
 TOTAL.....11,532 LBS.

NOTES:

- SET PUMP "ON" FLOAT SWITCH ELEVATION ACCORDING TO REQUIRED DOSE VOLUME. LIQUID HOLDING CAPACITY OF TANK IS 29 GALLONS PER INCH.
- SEE DRAWING #10.519 FOR RECOMMENDED CONTROL PANEL MOUNTING PROCEDURE.
- ALL SHIP-LAP JOINTS & INSPECTION LIDS MUST BE SEALED WATER-TIGHT WITH CS-302 BUTYL SEALANT.
- POLYPROPYLENE RISERS MUST BE SEALED WATER-TIGHT AT JOINT WITH 100% SILICONE.

DOSING TANK

CAPACITY: 29 GALS. PER INCH
 PUMP COOLING - 377 GAL. (13")
 MAX DOSE - 855.50 GAL. (29 1/2")
 UNUSED (ALARM) - 116 GAL. (4")
 TOTAL - 1,348.50 GAL. (46 1/2")



1250 GALLON DOSING TANK DETAIL
 DIMENSION ARE IN INCHES (NO SCALE)

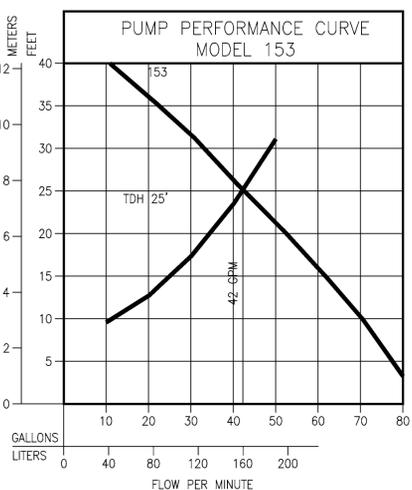
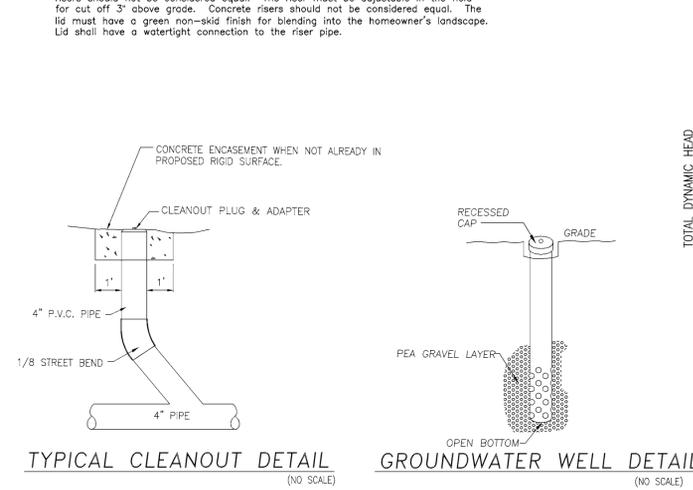
NOTES:

- ALL SHIP-LAP JOINTS MUST BE SEALED WATER-TIGHT WITH CS-302 BUTYL SEALANT.
- DESIGN DATA:
 1. EARTH COVER 2 FT. MAX.
 2. NO CAR OR TRUCK TRAFFIC OVER UNIT
 3. NO GROUND WATER
 4. CONCRETE MINIMUM COMPRESSIVE STRENGTH
 F_c = 4,500 PSI @ 28 DAYS
 5. REINFORCEMENT STEEL: ASTM A706,
 F_y = 60,000 PSI
 6. REINFORCEMENT WIRE: ASTM A185-94
 7. DESIGN SPECIFICATIONS - ACI 318

CASTING WEIGHTS:

TOP CASTING.....6,253 LBS.
 BOTTOM CASTING.....5,692 LBS.
 TOTAL.....11,945 LBS.

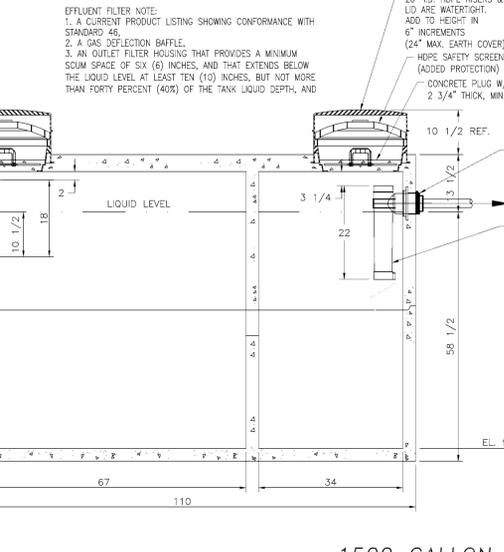
SEPTIC TANK CAPACITY:
 ACTUAL GALLONS LIQUID.....1,601



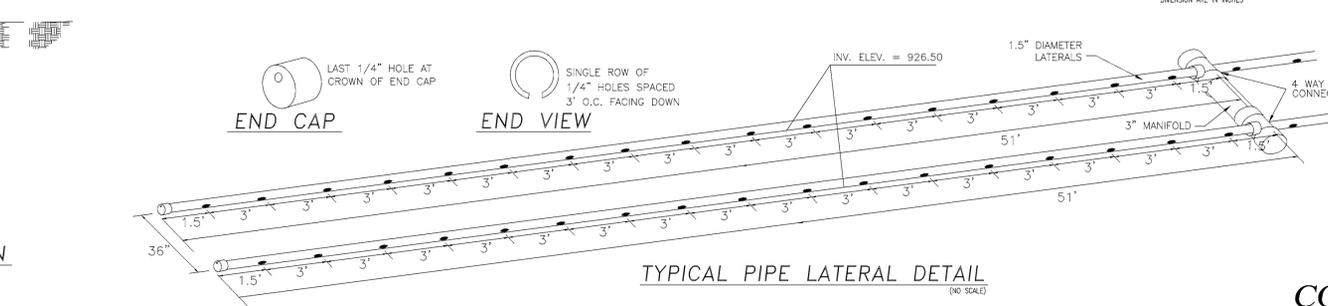
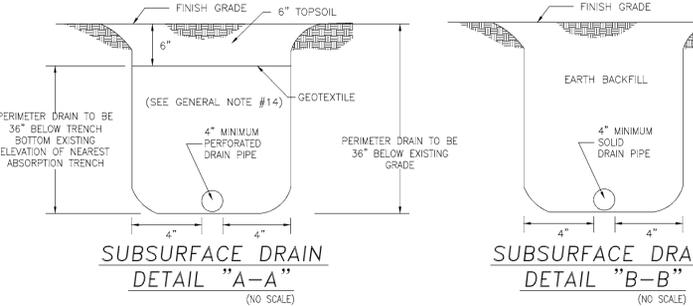
TOTAL DYNAMIC HEAD/FLOW PER MINUTE EFFLUENT AND DEWATERING

AVERAGE DAILY FLOW = 750 GAL.
 CYCLES PER DAY = 4
 TOTAL CYCLE TIME = 24 Hrs
 TOTAL RUN TIME PER DAY = 18 MIN.

ZOELLER 153
 COORD LENGTH 15"
 RATING 42 GPM @ 25' TDH
 # PUMPS Simplex
 VOLTAGE 115
 PHASE
 AMPS 6.0 AMPS (0.3HP)



1500 GALLON SEPTIC TANK DETAIL
 DIMENSION ARE IN INCHES (NO SCALE)



TYPICAL PIPE LATERAL DETAIL
 DIMENSION ARE IN INCHES (NO SCALE)

811

Know what's below.
 Call before you dig.

Within Indiana Call
 811 or 800-382-5544
 24 Hours a Day, 7 Days a Week.

PER INDIANA STATE LAW IC 8-1-26,
 IT IS AGAINST THE LAW TO EXCAVATE
 WITHOUT NOTIFYING THE UNDERGROUND
 LOCATION SERVICE TWO (2) WORKING
 DAYS BEFORE COMMENCING WORK.

SCALE: 1" = 40'

0 20 40 80

CONSTRUCTION PLANS DATED: 11/26/2012

10505 N. College Avenue
 Indianapolis, Indiana 46280
 weihe.net
 317 846-6611
 800 452-6408
 317 843-0546 fax
 ALLAN H. WEIHE, P.E., I.L.S. - FOUNDER

WEIHE ENGINEERS
 Land Surveying / Civil Engineering
 Landscape Architecture

PROJECT NO. W12-0055
 DWG. NAME: C500-TR050SEP
 DESIGN DATE: 11/26/12
 DRAWN BY: JES
 CHECKED BY: JES
 DATE: 11/26/2012

REVISIONS AND ISSUES
 REVISED PER COMMENTS FROM COUNTY HIGHWAY SURVEYOR'S OFFICE, AND HEALTH



JAMES E. SHIELDS JR. P.E. 10201333

PREPARED FOR:
SUNDOWN GARDENS
 SUNDOWN COMMERCIAL GROUP
 SEPTIC SEWER DESIGN

A part of the Sundown Quarter of Indian Creek, Township 19 North, Range 3 East, Washington Township, Hamilton County, Indiana.

SHEET NO. **C501**
 PROJECT NO. W12-0055

LOCATION: 11/20/12, W:\20055\Engineering\Septic\c500-120055SEP.dwg
 DATE/TIME: December 21, 2012 - 10:31 am
 PLOTTED BY: mlling

OFFICE OF THE HAMILTON COUNTY SURVEYOR

NOTE: ALL DIMENSIONS SHOWN ARE IN ENGLISH AND METRIC.
 FREE OPEN AREA: 278 SQUARE INCHES
 MATERIAL: CAST GRAY IRON ASTM A-46, CLASS 358
 FINISH: NO PAINT
 WEIGHT: 284*

NEENAH	4342
EAST JORDAN	6489N

* Or approved by Hamilton County Surveyor's Office (DRAWING NOT TO SCALE)

HAMILTON COUNTY SURVEYOR'S OFFICE
 BEEHIVE INLET CASTING
 APPROVED: *Kenton C. Ward* DATE: 11/26/12
 KENTON C. WARD, HAMILTON COUNTY SURVEYOR
 STANDARD PLAN CT-10
 REVISED: 11/18/2004

OFFICE OF THE HAMILTON COUNTY SURVEYOR

DEBRIS GUARD

Apron Size	V-bar Size	No. of H-bars	H-bar Size	Bolt Size	"A" Dim.
18	1/2	3	5/8	1/2	5
24	5/8	4	3/4	1/2	7
30	5/8	4	3/4	1/2	7 1/2
36	3/4	4	1	1/2	10 1/2
42	3/4	4	1	3/4	11
48	3/4	4	1 1/2	3/4	12
54	3/4	4	1 1/2	3/4	12
60	3/4	5	1 1/2	3/4	14
72	3/4	5	1 1/2	3/4	14
84	3/4	6	1 1/2	3/4	15

Round pipe aprons	Apron Size	V-bar Size	No. of H-bars	H-bar Size	Bolt Size	"A" Dim.
12	1/2	3	5/8	1/2	4	4
15	1/2	3	5/8	1/2	4	4 1/2
18	1/2	4	5/8	1/2	4	4 1/2
21	1/2	4	5/8	1/2	5	5
24	5/8	4	3/4	1/2	5	5
27	5/8	4	3/4	1/2	5 1/2	5 1/2
30	5/8	4	3/4	1/2	5 1/2	5 1/2
36	3/4	4	1	3/4	8	8
42	3/4	4	1	3/4	8	8
48	3/4	5	1	3/4	8	8
54	3/4	5	1 1/2	3/4	8	8
60	3/4	6	1 1/2	3/4	8	8
66	3/4	6	1 1/2	3/4	9	9
72	3/4	6	1 1/2	3/4	9	9
84	3/4	7	1 1/2	3/4	10	10
90	3/4	7	1 1/2	3/4	14	14

NEENAH 1642 or 1772
 EAST JORDAN 1045 or 1022

* Or approved by Hamilton County Surveyor's Office (DRAWING NOT TO SCALE)

HAMILTON COUNTY SURVEYOR'S OFFICE
 MANHOLE SOLID LTD CASTING
 APPROVED: *Kenton C. Ward* DATE: 11/26/12
 KENTON C. WARD, HAMILTON COUNTY SURVEYOR
 STANDARD PLAN D-12
 REVISED: 1 JAN 2000

OFFICE OF THE HAMILTON COUNTY SURVEYOR

NEENAH 1642 or 1772
 EAST JORDAN 1045 or 1022

* Or approved by Hamilton County Surveyor's Office (DRAWING NOT TO SCALE)

HAMILTON COUNTY SURVEYOR'S OFFICE
 MANHOLE SOLID LTD CASTING
 APPROVED: *Kenton C. Ward* DATE: 11/26/12
 KENTON C. WARD, HAMILTON COUNTY SURVEYOR
 STANDARD PLAN CT-1
 REVISED: 9/25/2006

OFFICE OF THE HAMILTON COUNTY SURVEYOR

LAKE CROSS-SECTIONS OPTION 3

USE OUTLET OPTION 3

HAMILTON COUNTY SURVEYOR'S OFFICE
 APPROVED: *Kenton C. Ward* DATE: 11/26/12
 KENTON C. WARD, HAMILTON COUNTY SURVEYOR
 STANDARD PLAN D-8
 REVISED: 1 JAN 2000

OFFICE OF THE HAMILTON COUNTY SURVEYOR

TYPICAL SIDEWALK SECTION
 NOT TO SCALE

* THE SPACE BEHIND THE CURB SHALL BE FILLED WITH SUITABLE MATERIAL TO THE REQUIRED ELEVATION AND COMPACTED IN LAYERS NOT TO EXCEED 6" IN DEPTH.
 SUBGRADE UNDER ALL CURBS, SIDEWALKS, AND DRIVES SHALL BE COMPACTED IN ACCORDANCE WITH I.N.D.O.T. SPECIFICATIONS.

CONCRETE SIDEWALK
 NOT TO SCALE

SIDEWALK DETAILS

TOWN OF WESTFIELD, INDIANA
 APPROVED: *Brian Agnew Hoff* DATE: 10/9/08
 BRIAN AGNEW HOFF, TOWN ENGINEER
 FIGURE P-10

OFFICE OF THE HAMILTON COUNTY SURVEYOR

ANCHOR FOR CONCRETE END SECTIONS

HAMILTON COUNTY SURVEYOR'S OFFICE
 APPROVED: *Kenton C. Ward* DATE: 11/26/12
 KENTON C. WARD, HAMILTON COUNTY SURVEYOR
 STANDARD PLAN 0-5
 REVISED: 1 JAN 2000

OFFICE OF THE HAMILTON COUNTY SURVEYOR

STANDARD MANHOLE FOR PIPE SIZES 12" THRU 24"

HAMILTON COUNTY SURVEYOR'S OFFICE
 APPROVED: *Kenton C. Ward* DATE: 11/26/12
 KENTON C. WARD, HAMILTON COUNTY SURVEYOR
 STANDARD PLAN D-20
 REVISED: 1 FEB 2002

10505 N. College Avenue
 Indianapolis, Indiana 46280
 weihe.net
 317 | 846 - 6611
 800 | 452 - 6408
 317 | 843 - 0546 fax

WEIHE ENGINEERS
 Land Surveying | Civil Engineering
 Landscape Architecture

PROJECT NO.: W12-0055
 DWG. NAME: C600-TPOBSET
 DESIGNER: JES
 DRAWN BY: JES
 CHECKED BY: JES
 DATE: 11/24/2012

REVISIONS AND ISSUES
 REVISED PER COMMENTS FROM COUNTY HIGHWAY SURVEYOR'S OFFICE, AND HEALTH

JAMES E. SHIELDS JR. P.E. 10201333

JAMES E. SHIELDS JR. P.E. 10201333

PREPARED FOR:
SUNDOWN GARDENS
 SUNDOWN COMMERCIAL GROUP
 DETAIL SHEET

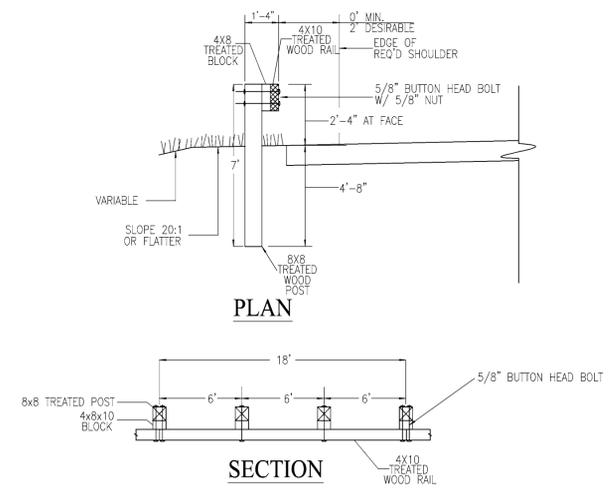
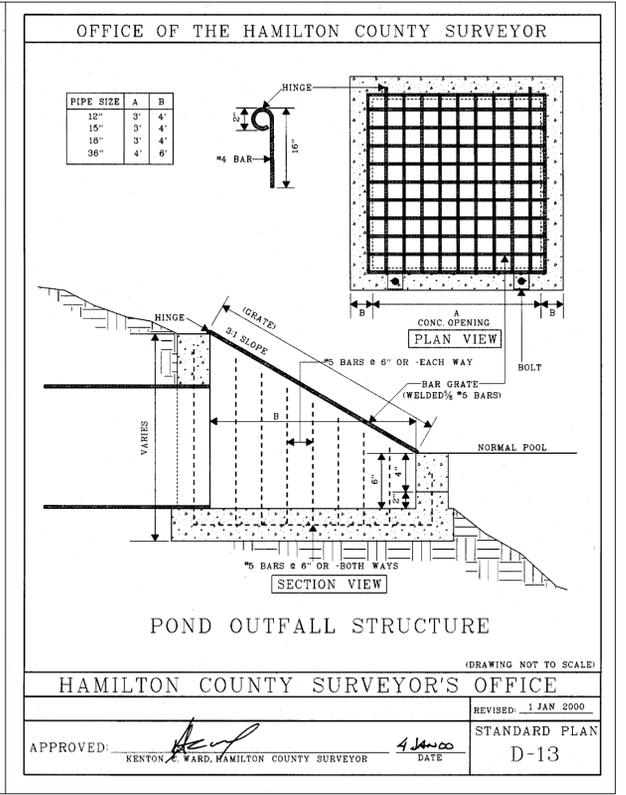
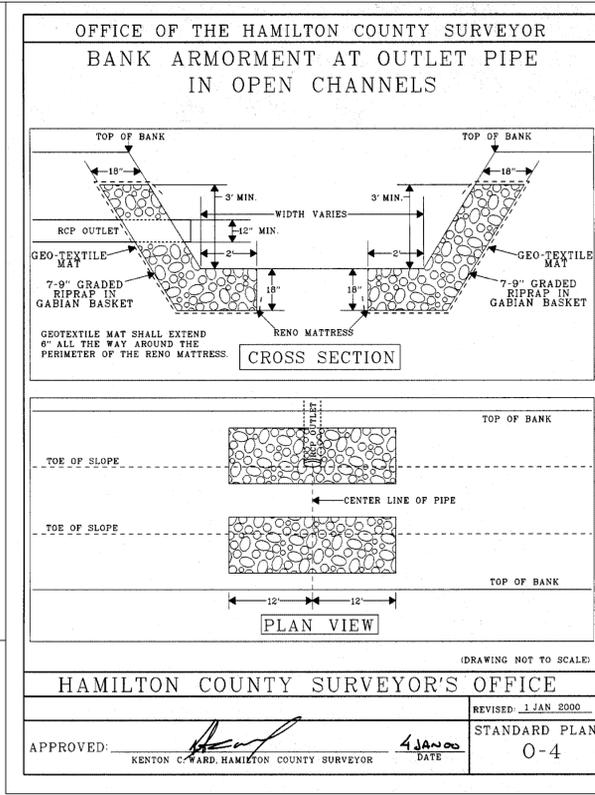
SHEET NO. **C600**
 PROJECT NO. W12-0055

Catalog No.		Catalog No.		Catalog No.		Dimensions in inches									
Type SF	Type CF	Type SF	Type CF	Type SF	Type CF	Diameter	A	B	C	D	E	F	N	S	
R-5050-SF6	R-5050-CF6	R-5050-SF6	R-5050-CF6	R-5050-SF6	R-5050-CF6	6	7	11	13	11	5 1/2	7	4	5 1/2	
R-5050-SF8	R-5050-CF8	R-5050-SF8	R-5050-CF8	R-5050-SF8	R-5050-CF8	8	9 1/4	11	13	11	1 1/2	8 1/4	4	5 1/2	
R-5050-SF10	R-5050-CF10	R-5050-SF10	R-5050-CF10	R-5050-SF10	R-5050-CF10	10	11 1/4	13 1/2	15 1/2	13 1/2	1 1/2	11 1/4	4	5 1/2	
R-5050-SF12	R-5050-CF12	R-5050-SF12	R-5050-CF12	R-5050-SF12	R-5050-CF12	12	13 1/4	15 3/4	18	15 3/4	1 1/2	13 1/4	4	5 1/2	
R-5050-SF15	R-5050-CF15	R-5050-SF15	R-5050-CF15	R-5050-SF15	R-5050-CF15	15	16 1/4	19	21	18 3/4	1 1/2	16 1/4	4	5 1/2	
R-5050-SF18	R-5050-CF18	R-5050-SF18	R-5050-CF18	R-5050-SF18	R-5050-CF18	18	19 1/4	22 1/4	24 1/4	22 1/4	1 1/2	19 1/4	4	5 1/2	
R-5050-SF20	R-5050-CF20	R-5050-SF20	R-5050-CF20	R-5050-SF20	R-5050-CF20	20	21 1/4	25 1/4	27 1/4	25 1/4	1 1/2	21 1/4	4	5 1/2	
R-5050-SF21	R-5050-CF21	R-5050-SF21	R-5050-CF21	R-5050-SF21	R-5050-CF21	21	22 1/4	25 1/4	27 1/4	25 1/4	1 1/2	22 1/4	4	5 1/2	
R-5050-SF24	R-5050-CF24	R-5050-SF24	R-5050-CF24	R-5050-SF24	R-5050-CF24	24	25 1/4	28 1/4	30 1/4	28 1/4	1 1/2	25 1/4	4	5 1/2	
R-5050-SF27	R-5050-CF27	R-5050-SF27	R-5050-CF27	R-5050-SF27	R-5050-CF27	27	28 1/4	31 1/4	33 1/4	31 1/4	1 1/2	28 1/4	4	5 1/2	
R-5050-SF30	R-5050-CF30	R-5050-SF30	R-5050-CF30	R-5050-SF30	R-5050-CF30	30	31 1/4	34 1/4	36 1/4	34 1/4	1 1/2	31 1/4	4	5 1/2	
R-5050-SF36	R-5050-CF36	R-5050-SF36	R-5050-CF36	R-5050-SF36	R-5050-CF36	36	37 1/2	41 1/2	43 1/2	41 1/2	1 3/8	37 1/2	6	7 1/2	
R-5050-SF42	R-5050-CF42	R-5050-SF42	R-5050-CF42	R-5050-SF42	R-5050-CF42	42	43 1/2	47 1/2	49 1/2	47 1/2	1 3/8	43 1/2	6	7 1/2	
R-5050-SF48	R-5050-CF48	R-5050-SF48	R-5050-CF48	R-5050-SF48	R-5050-CF48	48	49 1/2	54	56 1/2	54	1 1/2	49 1/2	6	7 1/2	

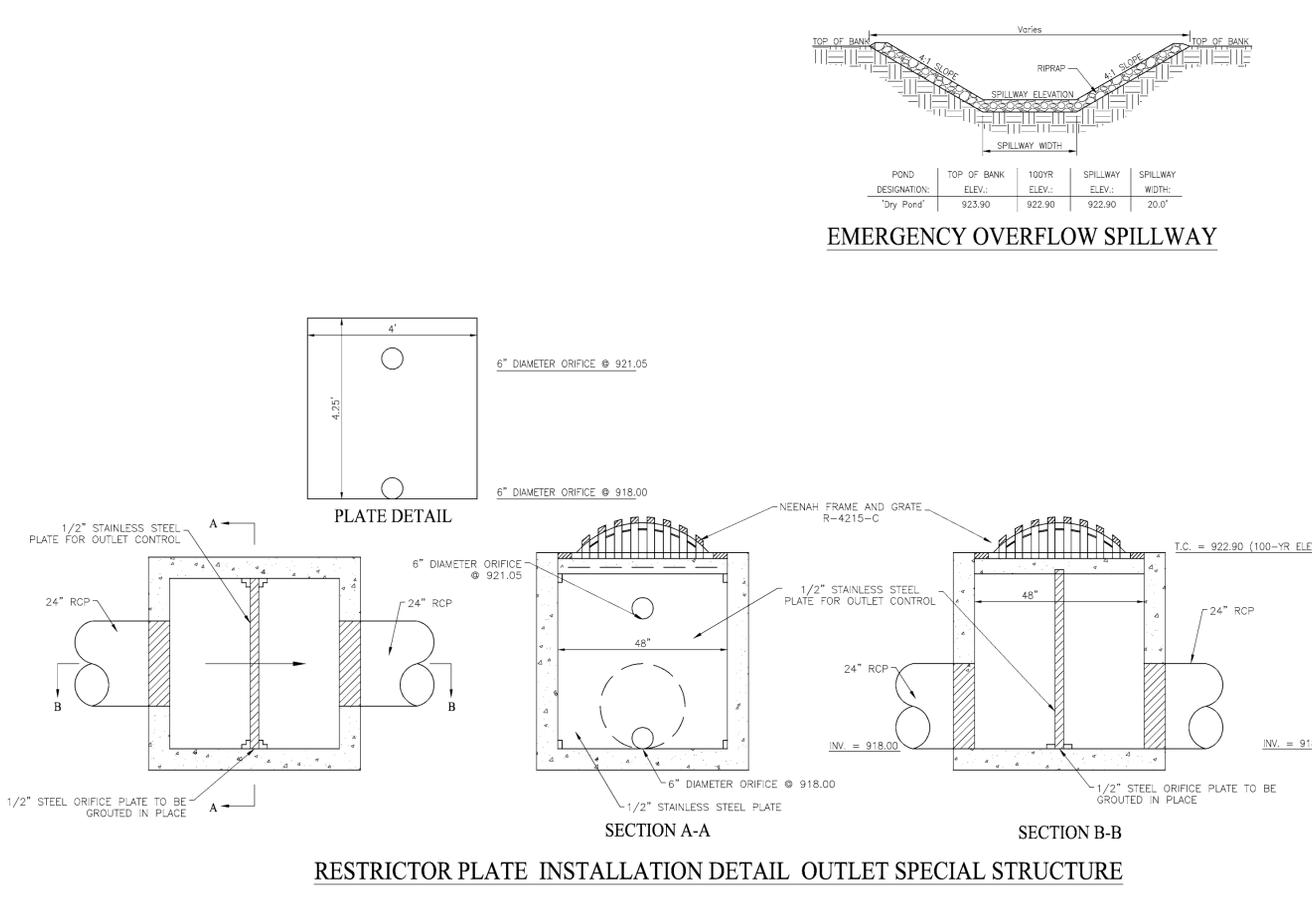
N and S Dimensions apply to Type SF and CF gates only the Type FF Flange faced and oriented A.W.W.A. class 125 standard.

Size and dimension details. Attached to corrugated metal pipe. TYPE SF Attached to concrete wall.

TYPE CF Attached to corrugated metal pipe. Not designed to fit helical corrugated metal pipe. TYPE FF Attached to flanged iron pipe.



- #### TYPICAL WOOD SAFETY BARRIER INSTALLATION
- SPECIFICATIONS:
- ALL TIMBER CONSTRUCTION SHALL BE IN ACCORDANCE WITH CURRENT INDOT STANDARD SPECIFICATIONS.
 - ALL TIMBER SHALL BE PRESSURE TREATED PER A.M.P.A. AND AS SPECIFIED PER CURRENT STATE AND/OR AASHTO SPECIFICATIONS FOR USE IN HWY CONSTRUCTION.
 - ALL TIMBER TO BE GRADED AS PER NFPA 1991 NATIONAL DESIGN SPECIFICATIONS FOR WOOD CONSTRUCTION.
 - RAIL AND POSTS SHALL BE EITHER:
 - No. 1 DOUGLAS FIR - LARCH
 - No. 1 S4S SOUTHERN YELLOW PINE
 - DRIVE POSTS OR AUGER HOLES.
 - BACKFILL WITH NATIVE SOIL, COMPACT SOIL IN 12" LIFTS.
 - TYPICAL POST TO BE 8"x8"x7'
 - TYPICAL RAIL SHALL BE TYPICAL RAIL TO BE 4"x10"x18'
 - ALL TIMBER TO BE ROUGH UNLESS OTHERWISE NOTED.
 - ALL TIMBER THAT IS CUT OR DRILLED IN THE FIELD SHALL BE TREATED WITH AN APPROVED PRESERVATIVE.
 - ALL TIMBER TO BE CUT TO EXACT LENGTH, DRESSED TO SIZE REQUIRED AND ALL PRACTICAL FRAMING TO BE DONE PRIOR TO TREATMENT.
 - ALL HARDWARE SHALL BE GALVANIZED AS PER CURRENT STATE SPECIFICATIONS AND / OR AASHTO SPECIFICATION M232 OR ASTM A307; A242; F436 TYPE 3; A563 DH3
 - HOLES DRILLED FOR BOLTS ARE TO BE 1/8" LARGER THAN BOLT SIZE.
 - ALL NUTS IN DIRECT CONTACT WITH TIMBER TO HAVE ONE PLATE WASHER BETWEEN NUT AND TIMBER
 - SET THREADS ON ALL BOLTS AT NUT WITH A CENTER PUNCH AFTER TIGHTENING.



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WEIHE ENGINEERS
Land Surveying | Civil Engineering
Landscape Architecture

PROJECT NO. W12-0055
DATE: 11/26/12
BY: JMW
DESIGNED BY: JMW
DRAWN BY: MEZ
CHECKED BY: JES
DATE: 11/26/12

REVISIONS AND ISSUES
REVISED PER COMMENTS FROM COUNTY HIGHWAY SURVEYOR'S OFFICE, AND HEALTH



JAMES E. SHIELDS, JR. P.E. 10201388

PREPARED FOR:
SUNDOWN GARDENS
SUNDOWN COMMERCIAL GROUP
DETAIL SHEET

SHEET NO. **C601**
PROJECT NO. W12-0055

CHAPTER 400. STORM SEWER PIPES AND OPEN CULVERT MATERIALS SECTION 401. GENERAL

401.01 Introduction

This section covers all work necessary for the construction of the storm sewer piping systems and related items complete, including catch basins and inlet drains, manholes, junction chambers, diversion chambers, outfall structures, and miscellaneous structures.

This specification covers the following types of materials for storm sewers, culverts, underdrains, inlet drains, conduits, and miscellaneous applications:

- 1. Reinforced Concrete Pipe and Fittings
2. Polyvinyl Chloride Pipe (PVC)
3. Corrugated Metal Pipe
4. Structural Plate Arches
5. Aluminum or Aluminized Steel Pipe and Structural Plate
6. Multi-Plate Pipe and Pipe Arches
7. PVC Composite Pipe
8. Corrugated Polyethylene Pipe - SSD (Perforated and Non-Perforated)

All lots shall have access to a subsurface or storm drain or open ditch.

Storm sewer systems shall have a minimum of four hundred (400) feet between structures.

This specification requires project plans and construction specifications to be submitted to and approved by all appropriate regulatory agencies prior to beginning any work. Before construction and preferably before fabrication, the Contractor shall submit to the Town of Westfield Public Works Department for approval calculations on the thickness or strength class and drawings showing pipe lengths, joints, and other construction and installation details.

Pipe Marking

Each length of pipe shall bear the name or trademark of the manufacturer, the location of the plant, and the date of manufacture. Each length shall likewise be marked to designate the class or strength of the pipe. The marking shall be made on the exterior or interior of the pipe barrel near the bell or groove end and shall be plainly visible.

401.02 Minimum Size for Storm Sewers

The minimum diameter of all storm sewers shall be 12 inches. When the minimum 12-inch diameter pipe will not limit the rate of release to the required amount, the rate of release for detention storage shall be controlled by an orifice plate or other device, subject to acceptance of the Town of Westfield Public Works Department.

401.03 Materials

Manholes, Inlets, and Other Structures

Storm sewer manholes and inlets shall be constructed of precast reinforced concrete. Material and construction shall conform to the latest edition of the Indiana Department of Transportation (INDOT) "Standard Specifications", Sections 702 and 720.

Materials for manholes, junction chambers, diversion chambers, and miscellaneous concrete structures shall comply with the following:

- 1. Cement shall be Portland cement and shall meet the requirements of ASTM Specification C150, ACI 301, and ACI 318. Concrete for precast manhole sections shall be 3000 psi concrete. Monolithic manholes shall use 4000 psi concrete. Ready-mix concrete shall conform to ASTM D94, Alternate 2. Maximum size of aggregate shall be 3/4 inch. Slump shall be between 2 and 5 inches.
2. Forms for chamber and structures shall be plywood or other approved material. Steel forms shall be used for the inside face of monolithic concrete manholes.
3. Reinforcing steel shall conform to ASTM A615, Grade 60 deformed bars, or ASTM A616 Grade 60 deformed bars.
a. Sand - ASTM Designation C144, passing a No. 8 sieve.
b. Cement - ASTM Designation C150, Type 1.
c. Water - shall be potable.

The manufacturer shall provide openings for sewers entering and leaving the manhole. Any additional openings needed to be made in the field shall be made by drilling holes at least 1/2 inch in diameter with a maximum spacing of 3 inches.

Manhole steps shall be made from a steel reinforcing rod encapsulated in a copolymer polypropylene resin. The manhole steps shall equal or exceed OSHA requirements.

Any other special manholes, junction chambers, diversion chambers, and miscellaneous concrete structures shall be constructed as detailed on the drawings.

Manhole bases shall be set on a minimum of six (6) inches of #8 aggregate.

Concrete end sections shall have a minimum of a twenty-four (24) inch toe plate, either poured in place or precast, bolted to the end section per Standard Detail (ST-30). Corrugated end sections with toe plates shall require Westfield Public Works approval.

Catch Basins

During construction, precautionary measures such as adequate screening of grates shall be maintained to deter earth and other materials from entering the drains.

Catch Basin, for sediment control, locations to be determined by a Professional Engineer, and approved by the Town of Westfield Public Works Department. Catch Basins shall be located within easily accessible dedicated easements or right of way of sufficient size to facilitate the required maintenance of these structures.

Catch basins and curb inlet structures which are two (2) feet by two (2) feet in size shall not have a depth deeper than four (4) feet from the invert of the lowest pipe to the lowest part of the rim elevation of the casting. All structures which do not meet this criteria shall be a manhole type which is forty-eight (48) inches in diameter.

Castings

Cast iron or ductile iron frames and gratings for catch basins and drain inlets shall be as shown on the drawings. Bearing surfaces shall be clean and shall provide uniform contact. Castings shall be tough, close-grained gray iron, sound, smooth, clean, free from blisters, blow holes, shrinkage, cold shuts, and all defects and shall conform to ASTM A48 Class No. 30-B.

During construction, precautionary measures such as adequate screening of grates shall be maintained to deter earth and other materials from entering the drains.

- The following castings types are required:
1. Manholes - Neenah R 1772 A or equivalent
2. Beehive Inlets - Neenah R 4342 or equivalent
3. "Roll Curb" Inlets - Neenah 3501 - TR or TL or equivalent
4. "Chair Back" Curb Inlet - Neenah 3287 - 10W or equivalent
5. Other types shall require approval of the Westfield Public Works Department.

Curb inlets castings which possess open backs or have grate bars parallel to traffic flow (are not "bicycle safe") will not be accepted by the Westfield Public Works Department.

Storm sewer castings manhole covers, beehive inlets, curb inlets or other approved casting shall have the following phrases cast in recessed letters two (2) inches in height:
1. "Storm Sewer"
2. "Drains to River" or "Drains to Waterway"
3. "Dump No Waste"
4. Other phrases shall require approval of the Westfield Public Works Department.

All castings frames shall have a horizontal bearing surface around the entire perimeter of the frame in order to support the cover or grate.

Bench Walls

Bench walls shall be shaped and formed for a clean transition with proper hydraulics to allow the smooth conveyance of flows through the structure. The bench wall shall form a defined channel, to a minimum height of the spring line of the pipe. Bench walls shall be formed using full depth Class "A" concrete. Solid concrete block or sand shall not be permitted as a base or filler for the construction of the bench wall.

Reinforced Concrete Pipe and Fittings

Reinforced concrete pipe and fittings shall conform to ASTM C76, latest revision, for circular pipe and ASTM C507 for elliptical pipe.

Reinforced concrete pipe and fittings for normal conditions shall be reinforced in accordance with ASTM C76, Class III, IV or V, Wall B (minimum). Acceptance shall be on the basis of Subsection 4.1.1 of ASTM C76.

Circumferential reinforcing in circular pipe shall be required. Only with approval from the Westfield Public Works Department will elliptical reinforcing or combination of circumferential reinforcing or part circular reinforcing shall be permitted, in circular pipe.

Concrete pipe shall be steam cured and shall not be shipped from point of manufacture for at least five days after having been cast.

Joints shall conform to the requirements of ASTM C443. Gaskets shall be of an oil resistant type having a maximum swell of 90% when tested in accordance with ASTM D471. Lubricant for jointing shall be approved by gasket manufacturer. All rubber gaskets similar to and equal to "Fres-Seal" or "Tylox" conforming to ASTM Designation C443, latest revision. The gasket shall be attached to the spigot of the pipe and shall be the sole element depended upon to make the joint flexible and practically watertight.

Butyl mastic joint sealant in rope or trowel applied form specifically made for permanently sealing joints in tongue and groove concrete sewer pipe. The material shall adhere to both the pipe surface and form a tight, flexible joint. The material shall have been in use for at least five years.

Test results and material specifications shall be submitted to the Westfield Public Works Department and shall have been approved prior to use on the project.

Polyvinyl Chloride Pipe and Fittings

Polyvinyl chloride (PVC) pipe and fittings shall comply with ASTM D 3034.

Corrugated Metal Pipe and Pipe Arches

The following specifications shall govern the manufacture of the corrugated steel pipe and pipe arches.

- 1. Specifications for Zinc Coated (galvanized) Steel Sheets (ASTM A444).
2. Manufacture of Corrugated Steel Culverts and Underdrains (ASHTO M-36).
3. Structural Plate for Pipe, Pipe Arches, and Arches (ASHTO M-167).
4. Bituminous Coated Corrugated Steel Pipe and Arches (ASHTO M-190).
5. Sheet Material (ASTM A525).

Bituminous Coated Welded Seam Helically Corrugated Steel Pipe

The pipe shall be fabricated from flat coils. The base metal, spelter coating, and fabrication shall meet the applicable requirements of AASHTO M-36.

Corrugations shall be 2-2/3-inch pitch by 1/2-inch depth. Each pipe shall have two annular corrugations rolled in each end. After the ends are rolled, the pipe shall be coated with bituminous material, inside and outside, to a minimum thickness of 0.05 inch as required by AASHTO M-190 for Type A coating.

Bituminous Coated and Paved Invert Welded Seam Corrugated Steel Pipem Helicaly

The pipe shall be fabricated from flat coils. The base metal, spelter coating, and fabrication shall meet the applicable requirements of AASHTO M-36.

Corrugations shall be 2-2/3-inch pitch by 1/2-inch depth. Each pipe shall have two annular corrugations rolled in each end.

After the ends are rolled, the pipe shall be coated with bituminous material, inside and outside, to a minimum thickness of 0.05 inch. In addition, bituminous material shall be applied to form a smooth pavement in the bottom 25% of pipe and in the bottom 40% of pipe arch as required by AASHTO M-190 for Type C coating.

Smooth Lined Welded Seam Helically Corrugated Steel Pipe

The pipe shall be fabricated from flat coils. The base metal, spelter coating, and fabrication shall meet the applicable requirements of AASHTO M-36.

Corrugations shall be 2-2/3-inch pitch by 1/2-inch depth. Each pipe shall have two annular corrugations rolled in each end. Each pipe shall have two lifting lugs welded to the outside of the pipe.

After the ends have been rolled, the pipe shall be coated with bituminous material, inside and outside, to a minimum thickness of 0.05 inch as required by AASHTO M-190 for Type A coating. The pipe shall be centrifugally lined on the inside with bituminous material to form a smooth interior which fills the corrugations to a minimum thickness of 1/8 inch above the crests of the corrugations. The bituminous lining material shall meet the requirements of AASHTO M-190.

Bituminous Coated Pipe Couplings

Coupling bands shall be the same base metal and spelter coating as the pipe. Bands shall be 0.064-inch thick and 0-1/2 inches wide. Bands shall be bituminous coated and shall have two corrugations 7-5/8 inches center to center. Bands 12-inch diameter through 30-inch diameter shall be one-piece, and 36-inch diameter through 96-inch diameter shall be two-piece. Bands 12-inch diameter through 48-inch diameter shall be joined by one galvanized bar, bolt, and strap connector. Band laps 54-inch diameter through 96-inch diameter shall be joined by two galvanized bar, bolt, and strap connectors.

Aluminum Alloy Structural Plate

Aluminum alloy plates and fasteners intended for use in the construction of structural plate pipe and pipe arch for storm sewers shall meet the applicable requirements of AASHTO M-219. The plate shall be fabricated from aluminum alloy 5052 H141. The chemical composition of the plates shall conform to ASTM B209 alloy 5052.

The corrugations shall have a pitch of 9 inches plus or minus 3/8 inch and depth of 2-1/2 inches plus or minus 1/8 inch. The inside crown radius of the corrugations shall be not less than 2 inches.

The structural plate pipe or arches shall be assembled in accordance with the manufacturer's erection instructions and in accordance with the drawings.

Aluminized Steel Pipe and Arches

Aluminized coated corrugated steel pipe and pipe arch intended for use in the construction of storm sewers shall meet the applicable requirements of AASHTO M-36. Sheet material shall meet the latest revision of ASTM A525 and ASHTO M-274. The coils from which the pipe is produced shall be coated with 1.0 ounce per square foot of commercially pure aluminum. The pipe shall be furnished circular or as a pipe-arch pipe as required and shall be fabricated with helical corrugations and a continuous welded seam extending from end to end of each length of pipe.

Each end of each pipe with the welded seam shall have two annular corrugations reformed to permit joining with huffer bands. Coupling bands shall be huffer bands.

Multi-plate Pipe and Pipe Arches

Multi-plate pipe and pipe arch structures shall be in accordance with AASHTO M-167. They shall be made with steel sections with corrugations 6 inches wide by 2 inches deep running at right angles to the section.

Bolts and nuts shall be special heat-treated galvanized 3/4-inch diameter bolts in accordance with ASTM specifications.

Multi-plate pipes and pipe arches shall be designed in accordance with the manufacturer's design criteria and in accordance with the drawings.

Detailed instructions regarding erection shall be furnished by the manufacturer.

PVC Composite Pipe and Fittings

ABS or PVC composite pipe and fittings shall conform to ASTM D 2680, Latest Revision.

Corrugated Polyethylene Pipe and Fittings

Corrugated polyethylene pipe shall comply with the requirements for materials, test methods, dimensions, and marking in accordance with ASHTO M-252 for pipe diameters 6" - 10", ASHTO M-294 for pipe diameters of 12" - 48", and ASHTO M7 for 54" and 60". The resin material shall meet ASTM D3350 cell classification 335400C.

The pipe lengths shall be connected using a gasketed, bell and spigot joint. This joint shall consist of a factory installed, gasketed double bell polyethylene coupling, a factory welded bell or gasket bell. The spigot end of the pipe shall be furnished with a factory installed elastomeric profile "O-ring" rubber gasket that meets ASTM F-477.

The pipe shall be shipped with a removable wrap to protect the gasket.

Provide lubrication to the joint prior to pushing together.

At least two (2) corrugations of the spigot end must insert into the bell end.

All HDPE pipe shall be certified through the Plastic Pipe Institute (PPI) Third Party Certification Program. All HDPE pipe delivered and installed shall bear the Third Party Administered PPI Seal.

Subsurface Drain Tiles

Double wall smooth bore corrugated polyethylene tile, manufactured under specification ASTM F 667, shall be required for all subsurface drain tile installed in swales. Single wall corrugated polyethylene drain tile shall be required for curb sub-grade drainage.

Polyethylene tile shall possess male and female pipe ends, which allow the construction of overlapping, gasket pipe joints, in conformance with the requirements of ASTM D 3212. The gasket material shall conform to all requirements of ASTM F 477. As an alternative, pipe joints utilizing external couplings bands will be accepted, provided the minimum ASHTO requirements for satisfying soil tightness are also achieved.

Storm sewer pipe shall be of the size shown on the drawings and shall meet all requirements of these specifications. Subsurface drains (SSD) shall have a minimum of four hundred (400) feet between structures. Subsurface drains shall have clean-outs installed every 400 feet or at changes in direction.

- 1. Specifications for Zinc Coated (galvanized) Steel Sheets (ASTM A444).
2. Manufacture of Corrugated Steel Culverts and Underdrains (ASHTO M-36).
3. Structural Plate for Pipe, Pipe Arches, and Arches (ASHTO M-167).
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The pipe shall be fabricated from flat coils. The base metal, spelter coating, and fabrication shall meet the applicable requirements of AASHTO M-36.

Corrugations shall be 2-2/3-inch pitch by 1/2-inch depth. Each pipe shall have two annular corrugations rolled in each end. After the ends are rolled, the pipe shall be coated with bituminous material, inside and outside, to a minimum thickness of 0.05 inch as required by AASHTO M-190 for Type A coating.

Bituminous Coated and Paved Invert Welded Seam Corrugated Steel Pipem Helicaly

The pipe shall be fabricated from flat coils. The base metal, spelter coating, and fabrication shall meet the applicable requirements of AASHTO M-36.

Corrugations shall be 2-2/3-inch pitch by 1/2-inch depth. Each pipe shall have two annular corrugations rolled in each end.

After the ends are rolled, the pipe shall be coated with bituminous material, inside and outside, to a minimum thickness of 0.05 inch. In addition, bituminous material shall be applied to form a smooth pavement in the bottom 25% of pipe and in the bottom 40% of pipe arch as required by AASHTO M-190 for Type C coating.

Smooth Lined Welded Seam Helically Corrugated Steel Pipe

The pipe shall be fabricated from flat coils. The base metal, spelter coating, and fabrication shall meet the applicable requirements of AASHTO M-36.

Corrugations shall be 2-2/3-inch pitch by 1/2-inch depth. Each pipe shall have two annular corrugations rolled in each end. Each pipe shall have two lifting lugs welded to the outside of the pipe.

After the ends have been rolled, the pipe shall be coated with bituminous material, inside and outside, to a minimum thickness of 0.05 inch as required by AASHTO M-190 for Type A coating. The pipe shall be centrifugally lined on the inside with bituminous material to form a smooth interior which fills the corrugations to a minimum thickness of 1/8 inch above the crests of the corrugations. The bituminous lining material shall meet the requirements of AASHTO M-190.

Bituminous Coated Pipe Couplings

Coupling bands shall be the same base metal and spelter coating as the pipe. Bands shall be 0.064-inch thick and 0-1/2 inches wide. Bands shall be bituminous coated and shall have two corrugations 7-5/8 inches center to center. Bands 12-inch diameter through 30-inch diameter shall be one-piece, and 36-inch diameter through 96-inch diameter shall be two-piece. Bands 12-inch diameter through 48-inch diameter shall be joined by one galvanized bar, bolt, and strap connector. Band laps 54-inch diameter through 96-inch diameter shall be joined by two galvanized bar, bolt, and strap connectors.

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The corrugations shall have a pitch of 9 inches plus or minus 3/8 inch and depth of 2-1/2 inches plus or minus 1/8 inch. The inside crown radius of the corrugations shall be not less than 2 inches.

The structural plate pipe or arches shall be assembled in accordance with the manufacturer's erection instructions and in accordance with the drawings.

Aluminized Steel Pipe and Arches

Aluminized coated corrugated steel pipe and pipe arch intended for use in the construction of storm sewers shall meet the applicable requirements of AASHTO M-36. Sheet material shall meet the latest revision of ASTM A525 and ASHTO M-274. The coils from which the pipe is produced shall be coated with 1.0 ounce per square foot of commercially pure aluminum. The pipe shall be furnished circular or as a pipe-arch pipe as required and shall be fabricated with helical corrugations and a continuous welded seam extending from end to end of each length of pipe.

Each end of each pipe with the welded seam shall have two annular corrugations reformed to permit joining with huffer bands. Coupling bands shall be huffer bands.

Multi-plate Pipe and Pipe Arches

Multi-plate pipe and pipe arch structures shall be in accordance with AASHTO M-167. They shall be made with steel sections with corrugations 6 inches wide by 2 inches deep running at right angles to the section.

Bolts and nuts shall be special heat-treated galvanized 3/4-inch diameter bolts in accordance with ASTM specifications.

Multi-plate pipes and pipe arches shall be designed in accordance with the manufacturer's design criteria and in accordance with the drawings.

Detailed instructions regarding erection shall be furnished by the manufacturer.

CHAPTER 500. INSTALLATION OF STORMWATER FACILITIES SECTION 501. GENERAL

501.01

Pipe Cover, Grade, and Separation from Sanitary Sewers

Pipe

Pipe grade shall be such that, in general, a minimum of 2.0 feet of cover is maintained over the top of the pipe. If the pipe is to be placed under pavement, then the minimum pipe cover shall be 2.5 feet from top of pavement to the top of pipe. Uniform slopes shall be maintained between inlets, manholes and inlets to manholes. Final grade shall be set with full consideration of the capacity required, sedimentation problems, and other design parameters. Minimum and maximum allowable slopes shall be those capable of producing velocities of between 2.5 and 10 feet per second, respectively, when the sewer is flowing full. Maximum permissible velocities for various storm sewer materials are listed in Table 501-1. A minimum of 2.0 feet of vertical separation between storm sewers and sanitary sewers shall be required. When this is not possible, the sanitary sewer must be encased in concrete or ductile iron within 5 feet, each side, of the crossing centerline.

Rear Yard Swales

Rear yard swales shall have a minimum slope of 2% gradient. Swales less than a 2% gradient are required to have double-wall perforated drain tile installed two (2) feet below the invert of the swale. Minimum swale slope shall be greater than 1% gradient. Subsurface drains shall have a minimum slope of .5% gradient.

Proposed road grades will be required to be graded within two (2) inches of the proposed subgrade prior to installation. SSD. Trench width for SSD shall be a minimum of three (3) inches on both sides of the SSD, with a minimum trench width of twelve (12) inches.

501.02 Alignment

Storm sewers shall be straight between manholes and/or inlets.

501.03 Manholes/Inlets

All Manholes and Inlets must be pre-stamped with an appropriate message per the Town of Westfield Public Works Department Standards. Manholes and/or inlets shall be installed to provide human access to continuous underground storm sewers for the purpose of inspection and maintenance. The casting across minimum inside diameter shall be no less than 22 inches or a rectangular opening of no less than 22 inches by 22 inches. Manholes shall be provided at the following locations:
1. Where two or more storm sewers converge.
2. Where pipe size or the pipe material changes.
3. Where a change in horizontal alignment occurs.
4. Where a change in pipe slope occurs.
5. At intervals in straight sections of sewer, not to exceed the maximum allowed. The maximum distance between storm sewer manholes shall be as shown in Table 501-2.

In addition to the above requirements, a minimum drop of 0.1 foot through manholes and inlet structures should be provided. Pipe slope should not be so steep that inlets surcharge (i.e. hydraulic grade line should remain below rim elevation).

Manhole/inlet inside sizing shall be according to the Town of Westfield Public Works Department Standards. Note that the Town of Westfield Public Works Department may require the applicant to provide pre-treatment BMPs prior to discharge of the storm sewer line into a pond.

501.04 Installation and Workmanship

Bedding and backfill materials around storm sewer pipes, sub-drains, and the associated structures shall be according to the Town of Westfield Public Works Department Standards. The specifications for the construction of storm sewers and sub-drains, including backfill requirements, shall not be less stringent than those set forth in the latest edition of the "INDOT Standard Specifications". Additionally, ductile iron pipe shall be laid in accordance with American Water Works Association (AWWA) C-600 and clay pipe shall be laid in accordance with either American Society of Testing Materials (ASTM) C-12 or the appropriate American Association of State Highway and Transportation Officials (ASHTO) specifications. Pipes/sags on newly installed storm systems will not be allowed. Also, infiltration from cracks, missing pieces, and joints shall not be allowed. Variations from these standards must be justified and receive written acceptance from the Town of Westfield Public Works Department. All structures shall require inspection prior to backfill.

501.05 Special Hydraulic Structures

Special hydraulic structures required to control the flow of water in storm runoff drainage systems include junction chambers, drop structures, manholes, stilling basins, and other special structures. The use of these structures shall be limited to those locations justified by prudent planning and by careful and thorough hydraulic engineering analysis. Certification of special structures by a certified Structural Engineer may also be required.

The use of stormwater lift stations will not be permitted under any circumstances.

501.06 Connections to Storm Sewer System

Unless otherwise approved, perforated subsurface drain tiles, footer drains, or sump pumps lines shall connect to a storm sewer. Storm sewer connections shall be provided by either precast or drilled holes, which are to be a minimum of two (2) inches larger the O.D. of the connecting tile. Drain tile connections shall be made with either "tee" or "wye" method.

Blind connections to storm sewer pipes shall not be allowed.

Subsurface tile as specified herein may be used to convey water collected in sump pits and footer drains to an acceptable storm sewer outlet, provided these drain tiles are properly sized to accept these flows.

Gutter or building drains shall not be allowed to outlet directly into storm sewer systems.

To allow any connections to the storm sewer system, provisions for the connections shall be shown in the drainage calculations for the system. Specific language shall be provided in the restrictive covenants, on the record plat, or with the parcel deed of record, noting the ability or inability of the system to accommodate any permitted connections, for example, sump pumps and footing drains.

- 1. Sump pumps installed to receive and discharge groundwater or other stormwater shall be connected only into "T" subsurface drain (SSD) lateral connection if provided. When connection to the SSD is not possible, discharge pipe must daylight. Sump pumps installed to receive and discharge floor drain flow or other sanitary sewage shall be connected to the sanitary sewers. A sump pump shall be used for one function only, either the discharge of stormwater or the discharge of sanitary sewage, each being connected to the respective receiving system only.
2. Footing drains and perimeter drains shall be connected only into "T" subsurface drain (SSD) lateral connection if provided. When connection to the SSD is not possible, discharge pipe must daylight.
3. All roof downspouts, roof drains, or roof drainage piping shall discharge onto the ground and shall not be directly connected to the storm drainage system. Variation from this requirement may be requested and granted by the Town of Westfield Public Works Department in special circumstances. No downspouts or roof drains shall be connected to the sanitary sewers.
4. Garage and Basement floor drains and water softener discharge shall not be connected to the storm sewers.
5. Swimming Pool drains shall not be connected to the storm sewers unless the water is dechlorinated prior to being connected to the storm sewer.

501.07 Inspection and Rejection of Pipe

The quality of all materials, the process of manufacture, and the finished pipe shall be subject to inspection and approval by the Westfield Public Works Department or designee. Such inspection may be made at the place of manufacture or on the work after delivery, or at both places; and the pipe shall be subject to rejection at any time on account of failure to meet any of the specifications' requirements even though sample pieces may have been accepted as satisfactory at the place of manufacture.

Prior to being lowered into the trench, each pipe shall be carefully inspected and those not meeting the specifications shall be rejected and at once removed from the work.

The Westfield Public Works Department shall have the right to cut cores from such pieces of the concrete pipe as he desires for such inspection and tests as he may wish to apply. The developer/contractor shall pay for the samples of an Independent Laboratory Testing.

Holes left by the removal of cores shall be filled in an approved manner by and at the expense of the manufacturer of the pipe.

The Westfield Public Works Department shall also have the right to take samples of concrete after it has been mixed, or as it is being placed in the forms or molds, and to make such inspection and tests there as he may wish.

Any pipe which has been damaged after delivery will be rejected and replaced solely at the Contractor's expense.

501.08 Handling Pipe

Each pipe section shall be handled into its position in the trench only in such manner and by such means as the Westfield Public Works Department or designee approves as satisfactory. As for handling, the Contractor shall be required to furnish slings, straps, and other approved devices to permit satisfactory support of all parts of the pipe when it is lifted.

501.09 Notice to Westfield Public Works Department

The Westfield Public Works Department or designee shall be notified when the pipes are to be laid in the trench. At least 15 feet of the pipe shall, under ordinary circumstances, be exposed before covering begins.

501.10 Laying Pipe

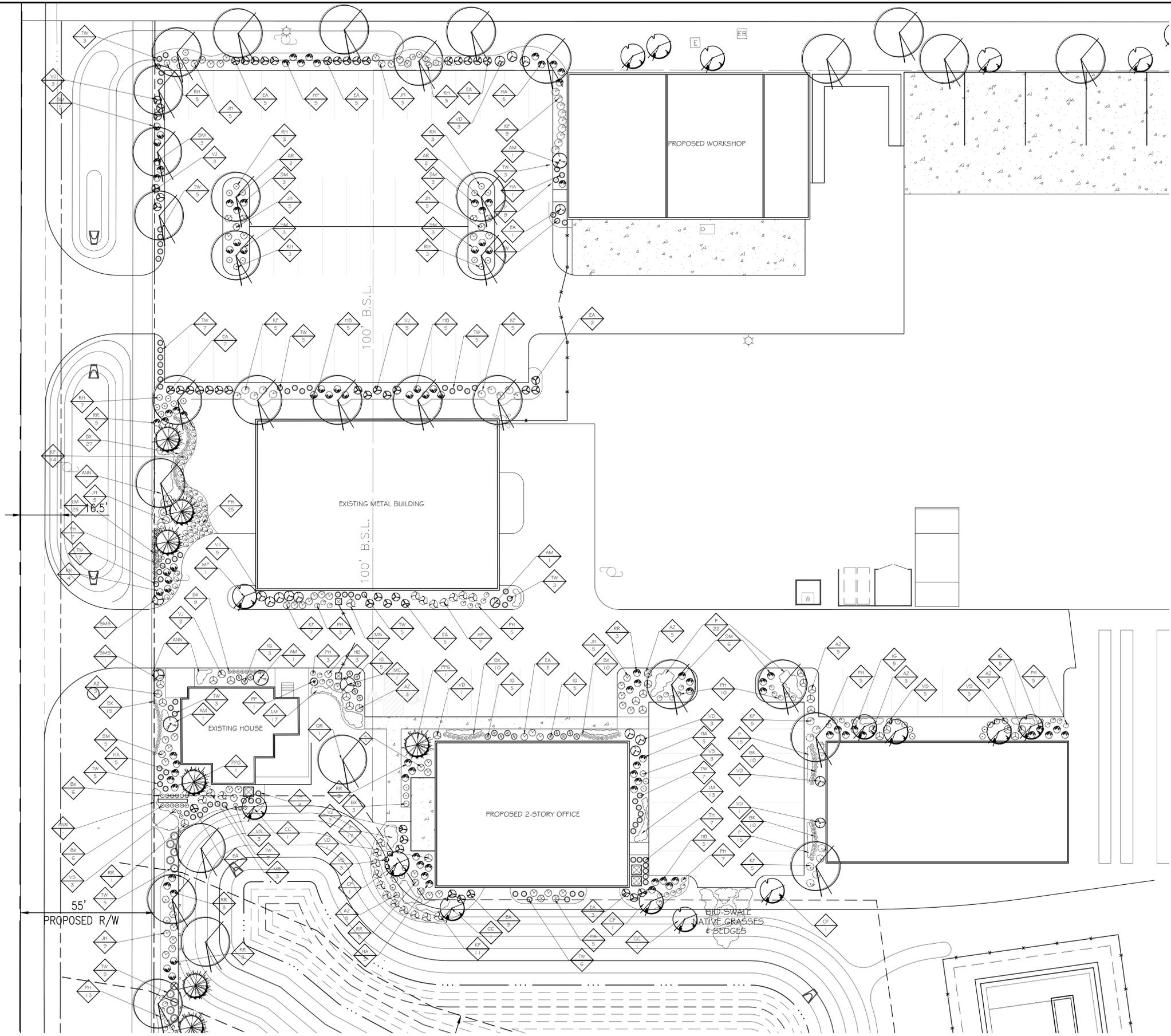
All pipes shall be reinspected for soundness and damage due to handling immediately before being lowered into the trench. Any pipe found to be unsound or damaged will be rejected and shall be removed immediately from the site of the work.

No portion of a Storm Sewer pipe, open culvert, manhole, inlet, or subsurface tile system shall be installed directly or indirectly onto frozen ground or with frozen backfill materials.

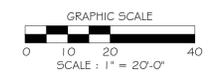
Where ground water is encountered, the contractor shall make every effort necessary to secure a dry trench bottom prior to installation of the storm water system. The contractor shall be required to maintain the groundwater level below the base of the excavation. The Town, nor the Westfield Public Works Department, will not assume any liability for the actions of the Developer or Contractor in the performance of the required dewatering operation. If trench conditions outlined in this section cannot be achieved, the Westfield Public Works Department or designee may terminate installation until such efforts can be achieved.

All pipes shall be laid accurately to the required line and grade as shown on the drawings, and in the manner as prescribed by the pipe manufacturer

SIX POINTS ROAD



01 Detail Planting Plan
SCALE: 1" = 20'-0"



**SUNDOWN
COMMERCIAL
GROUP**
13400 Old Meridian Street
Carmel, Indiana 46032
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**SUNDOWN GARDENS
19653 SIX POINTS RD.
SHERIDAN, INDIANA**

REVISION	DATE:

**SCHEMATIC DESIGN
DEVELOPMENT
DETAIL LANDSCAPE
PLAN**

Job Number: -
Drawn By: SGS
Date: 12/11/2012
Checked By: SGS

**SHEET NUMBER
LA-102**

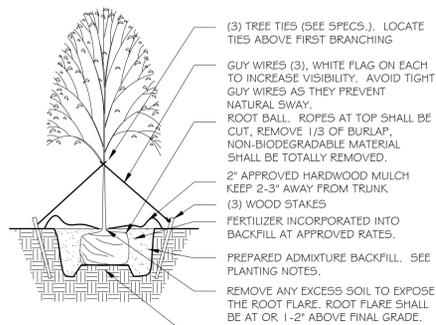
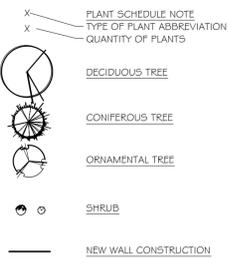
PLANTING NOTES:

1. IN CASE OF DISCREPANCY BETWEEN THE PLAN AND THE PLANT LIST - THE PLAN SHALL DICATE.
2. ALL SHRUB PLANTING AREAS TO BE COVERED W/ 2" LAYER OF SHREDDED HARDWOOD BARK MULCH. ALL GROUND COVER BEDS SHALL BE COVERED W/ 2" HARDWOOD BARK MULCH. MULCH SHALL BE UNIFORM IN TEXTURE AND COLOR AND SHALL BE OBTAINED FROM SAWMILL OR PROCESSED TREE TRIMMINGS WILL BE ALLOWED.
3. AN APPROVED PRE-EMERGENT HERBICIDE SHALL BE APPLIED IN ALL PLANTING BEDS AT A RATE SPECIFIED BY MANUFACTURER FOR EACH VARIETY.
4. NO SUBSTITUTIONS OF PLANT MATERIAL WILL BE ALLOWED. IF PLANTS ARE NOT AVAILABLE, THE CONTRACTOR SHALL NOTIFY THE ARCHITECT PRIOR TO BID IN WRITING. ALL PLANTS SHALL BE INSPECTED AND TAGGED W/ PROJECT I.D. AT NURSERY OR CONTRACTORS OPERATIONS PRIOR TO MOVING TO JOB SITE. PLANTS MAY BE INSPECTED AND APPROVED OR REJECTED ON THE JOB SITE BY THE ARCHITECT.
5. ALL PLANTS SHALL MEET OR EXCEED AMERICAN STANDARDS FOR NURSERY STOCK, 2004 EDITION, AS SET FORTH BY THE AMERICAN ASSOCIATION OF NURSEYMEN.
6. PLANTS AND ALL OTHER MATERIALS TO BE STORED ON SITE WILL BE PLACED WHERE THEY WILL NOT CONFLICT W/ CONSTRUCTION OPERATIONS AS DIRECTED BY ARCHITECT.
7. ALL LANDSCAPE PLANTINGS SHALL BE GUARANTEED BY THE LANDSCAPE CONTRACTOR FOR A PERIOD OF ONE YEAR FOLLOWING FINAL INSPECTION BY ARCHITECT. AT THE END OF THIS PERIOD, PLANT MATERIAL TERMED DEAD OR UNSATISFACTORY BY THE ARCHITECT SHALL BE REPLACED AT NO ADDITIONAL CHARGE BY THE CONTRACTOR.
8. THE LANDSCAPE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS AND FEES THAT MAY BE REQUIRED FOR HIS PORTION OF WORK.
9. COMPOST TO BE USED ON PROJECT SHALL BE DOMESTIC OR IMPORTED MATERIAL, DARK BROWN IN COLOR, AND COMPOSED OF COMPOSTED VEGETABLE MATERIAL, LEAF LITTER, AND MANURE AS PRODUCED BY GREENDELL MULCH AND MIX. ALTERNATIVE EQUAL MAY BE USED IF APPROVED BY THE ARCHITECT.
10. LANDSCAPE CONTRACTOR SHALL NOTIFY THE ARCHITECT IN WRITING PRIOR TO BID DATE OF ANY PLANTS HE / SHE FEELS MAY NOT SURVIVE IN LOCATIONS NOTED ON PLANS.
11. ALL DISTURBED LAWN AREAS TO BE SEEDED OR SOODED. LAWNS SHALL RECEIVE 4" - 6" APPROVED TOPSOIL PRIOR TO SEEDING OPERATIONS. SITE CONTRACTOR TO DISTRIBUTE TOPSOIL AND ROUGH GRADE SITE PRIOR TO LANDSCAPE INSTALLATION.
12. BACKFILL FOR TREE PLANTING SHALL BE 75% APPROVED TOPSOIL AND 25% APPROVED ORGANIC COMPOST. TOP LAYER OF BACKFILL SHALL BE 100% EXISTING TOPSOIL. A 5-10-5 ANALYSIS SLOW RELEASE FERTILIZER SHALL BE INCORPORATED INTO BACKFILL AT APPROVED RATES.

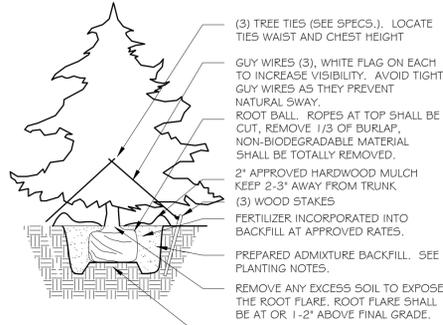
PLAN NOTES:

- 1 PROPOSED WALL
- 2 NATURAL TREE PRESERVATION AREA
- 3 BENCH FOR COMMUNITY USE
- 4 STORM WATER RUNOFF DETENTION AREA
- 5 COMMON AREA GREEN SPACE
- 6 THE HEALTH AND QUALITY OF THE TREES IN THE NATURAL TREE PRESERVATION AREAS IS TO BE EVALUATED TO DETERMINE WHAT ADDITIONAL PLANTINGS MAY BE REQUIRED PER THE STANDARDS OF DESIGN OUTLINED IN SECTION 26.04.06 OF THE CARMEL ZONING ORDINANCE.
- 7 RAIN GARDEN
- 8 PROPOSED ENTRY WALL MONUMENT/SIGN
- 9 EARTHEN MOUND

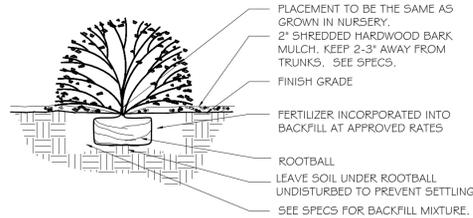
LEGEND:



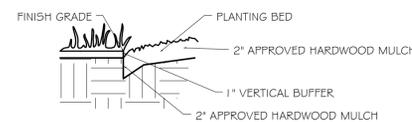
TREE PLANTING DETAIL
NOT TO SCALE



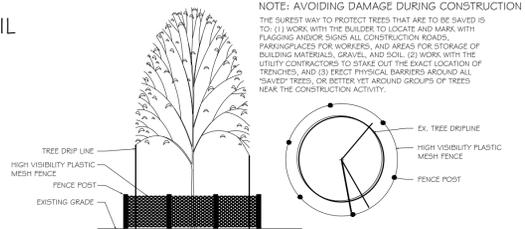
EVERGREEN TREE PLANTING DETAIL
NOT TO SCALE



SHRUB PLANTING DETAIL
NOT TO SCALE



SPADE EDGE DETAIL
NOT TO SCALE



BARRIERS THAT EXTEND BEYOND THE DRIP LINE BETTER PROTECT TREES DURING THE CONSTRUCTION PROCESS.

TREE PRESERVATION DETAIL
NOT TO SCALE

"Holey Moley" says, "DON'T DIG BLIND"

Call Monday through Friday - 7 a.m. to 6 p.m.

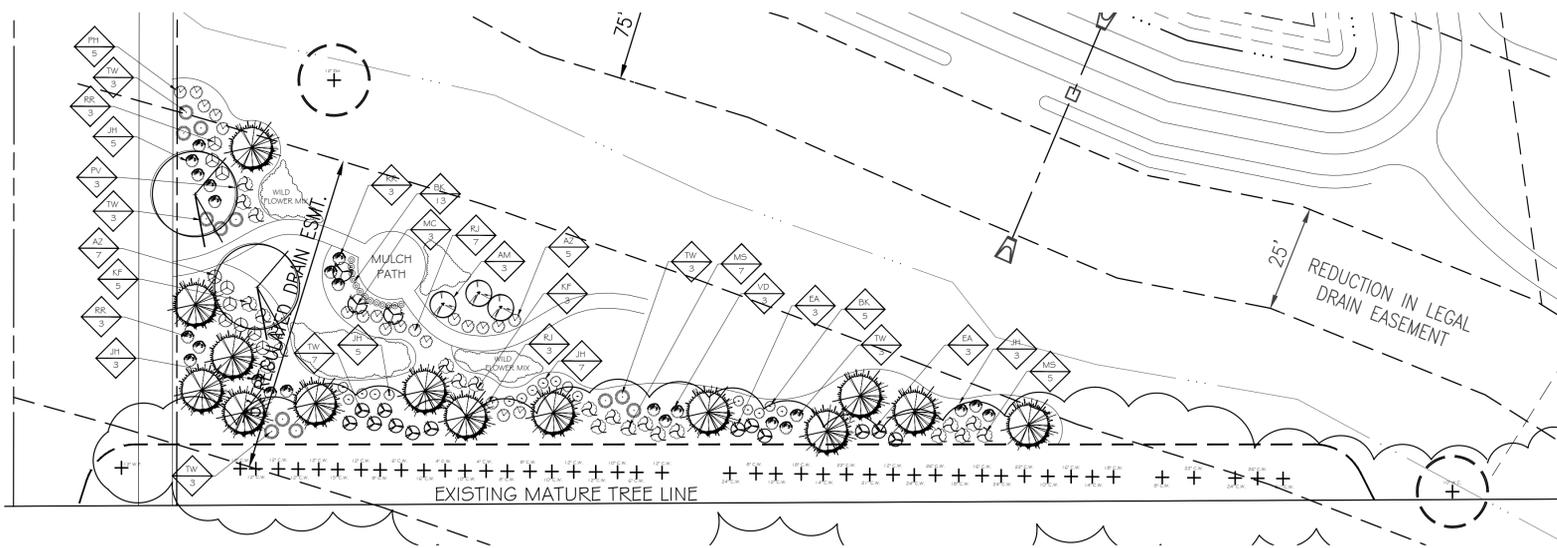
1-800-352-5544 (Mish. Indigo) 428-5200 (Outside Indigo)

PER INDIANA STATE LAW IS-89-1981, IT IS AGAINST THE LAW TO EXCAVATE WITHOUT NOTIFYING THE UNDERGROUND LOCATION SERVICE TWO (2) WORKING DAYS BEFORE COMMENCING WORK.

CONTRACTOR TO VERIFY THE LOCATION AND SIZE OF ALL EXISTING UTILITIES PRIOR TO COMMENCEMENT OF CONSTRUCTION

PLANT SCHEDULE

KEY	QTY.	SCIENTIFIC NAME / COMMON NAME	SIZE
Shade Trees			
AM	7	AMELANCHIER x GRANDIFLORA / AUTUMN BRILLIANCE SERVICEBERRY MS	6 - 7'
AR	6	ACER RUBRUM / OCTOBER GLORY RED MAPLE	2-1/2'
AS	5	ACER s. GREEN MOUNTAIN / GREEN MOUNTAIN SUGAR MAPLE	2-1/2'
CC	3	CERCIS CANADENSIS/ EASTERN REDBUD MS	7 - 8'
CF	3	CORNUS f RUBRA / PINK FLOWERING DOGWOOD	2'
CV	3	CRATAEGUS v. WINTER KING / WINTER KING HAWTHORN	2'
MC	4	MALUS 'CORALBURST' / CORALBURST CRABAPPLE	2'
MR	5	MALUS 'ROYAL RAINDROP' / ROYAL RAINDROP CRABAPPLE	2'
NS	1	NYSSA SYLVATICA / BLACK GUM	2-1/2'
PA	2	PLATANUS x ACERFOUA / LONDON PLANETREE	2-1/2'
PC	6	PYRUS CALLERYANA / CLEVELAND SELECT PEAR	2'
PV	8	PRUNUS VIRGINIANA / CANADA RED CHOKECHERRY	2-1/2'
QR	1	QUERCUS RUBRA / NORTHERN RED OAK	2-1/2'
UF	7	ULMUS AMERICANA / FRONTIER ELM	2-1/2'
ZS	2	ZELKOVA SERRATA / JAPANESE ZELKOVA	2-1/2'
Evergreen Trees			
PAB	24	PICEA ABIES / NORWAY SPRUCE	8 - 10'
PG	17	PICEA PUNGENS F. GLAUCA / COLORADO BLUE SPRUCE	8 - 10'
PPG	5	PICEA PUNGENS / FAT ALBERT SPRUCE	7 - 8'
Shrubs			
AZ	34	AZALEA 'BOUDOIR' / BOUDOIR AZALEA	18"
BK	38	BUXUS x KOREANA / GREEN VELVET BOXWOOD	15 - 18"
BX	86	BUXUS x / GREEN GEM BOXWOOD	15 - 18"
EA	47	EUONMUS s 'COMPACTUM' / DWARF BURNING BUSH	24 - 30"
HA	25	HYDRANGEA ARBORESCENS / ANNABELLE HYDRANGEA	24 - 30"
HB	18	HYDRANGEA BAILMER / ENDLESS SUMMER HYDRANGEA	24 - 30"
HP	12	HYDRANGEA PANICULATA / TARDIVA HYDRANGEA	24 - 30"
IG	31	ILLEX m 'MESOG' / CHINA GIRL HOLLY	18 - 24"
JH	62	JUNIPERUS h. 'BLUE CHIP' / BLUE CHIP JUNIPER	18 - 24"
PP	1	PICEA p. GLAUCA / GLOBE BLUE SPRUCE	18 - 24"
RH	36	RHUS a. 'GRO-LOW' / GRO-LOW FRAGRANT SUMAC	18 - 24"
RJ	15	RHODODENDRON x. PJM / PJM RHODODENDRON	18 - 24"
RR	34	ROSA 'RADRAZZ' / KNOCK OUT SHRUB ROSE	18 - 24"
SM	29	SYRINGA MEYERI / DWARF KOREAN LILAC	24 - 30"
SMS	2	SYRINGA m. PALUBIN / DWARF KOREAN LILAC ON STD.	24 - 30"
TH	11	TAXUS x. MEDIA HICKSII / HICKS YEW	24 - 30"
TW	102	TAXUS x. MEDIA WARDI / WARDI YEW	18 - 24"
VD	13	VIBURNUM DENTATUM / CHICAGO LUSTRE VIBURNUM	24 - 30"
VJ	22	VIBURNUM X JUDDI / JUDDI VIBURNUM	24 - 30"
VS	22	VIRGINIA 'SPRICH' / LITTLE HENRY SWEET SPIRE	18"
Grasses & Groundcovers			
LM	63	LIRIOPE m. BIG BLUE / BIG BLUE LIRIOPE	#1
KF	69	CALAMAGROSTIS x ACUTIFLORA / KARL FOERSTER FEATHER REED GRASS	#3
MS	16	MISCANTHUS s GRACILLIMUS / MAIDEN GRASS	#3
P	82	ASSORTED PERENNIALS	#1
PH	59	PENNISETUM s HAMELN / DWARF FOUNTAIN GRASS	#3
PV	23	PANICUM v. 'RED SWITCH' / RED SWITCH GRASS	#3
ANN	900sf	ANNUAL CHANGE OUT BED	-



01 Detail Planting Plan
SCALE: 1" = 20'-0"



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SUNDOWN GARDENS
19653 SIX POINTS RD.
 SHERIDAN, INDIANA

REVISION	DATE:
-	-
-	-
-	-
-	-

SCHEMATIC DESIGN DEVELOPMENT

SCHEDULES DETAILS

Job Number: -
 Drawn By: SGS
 Date: 12/11/2012
 Checked By: SGS

SHEET NUMBER

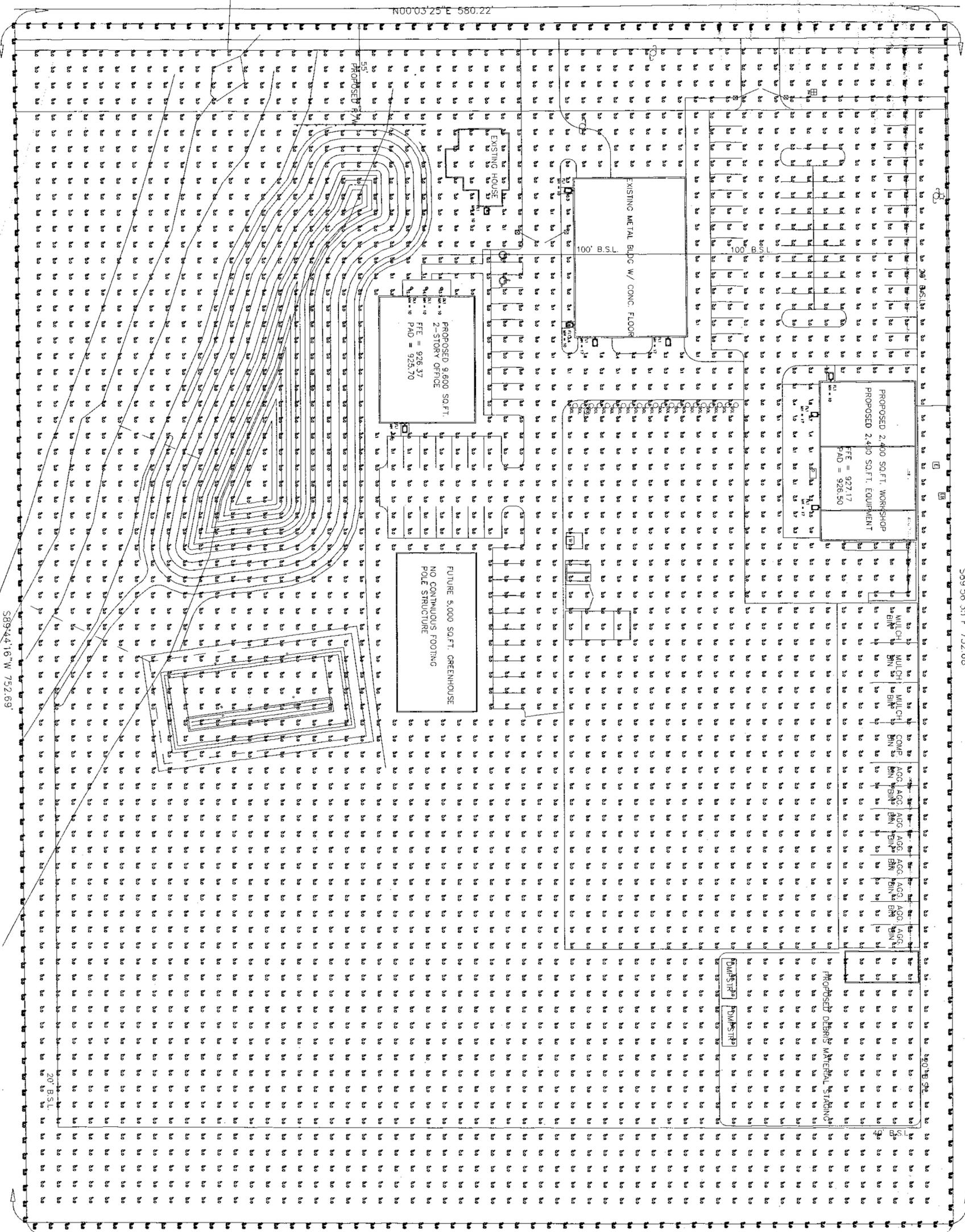
LA-103

SIX POINTS ROAD

N00°03'25"E 580.22'

Symbol	Qty	Label	LF	Description	Turn Lumens	Turn Watts
□	9	FL1	0.900	ACQUITY DSPT1 LED 1 AS30/40K WFL WQLT AEMD DOWN	1900	21
○	3	D11	0.900	ACQUITY REAR6C DBAW ESL 1000L 35K 655C	1060	14.2

Label	Calc Type	Units	Avg	Max	Min	Avg/Min/Max/Min/Ft	Ft
Ground Footcandles	Footcandle	fc	0.03	14.1	0.0	N.A./N.A./N.A.	3835
Property Line	Footcandle	fc	0.00	0.0	0.0	N.A./N.A./N.A.	266

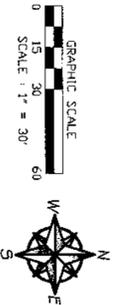


S89°44'16"W 752.69'

S00°03'25"E 576.03'

S89°56'56"W 752.68'

01 Site Lighting / Calculation Plan
SCALE: 1" = 30'-0"



SHEET NUMBER
SL-100

Job Number:	19653
Drawn By:	SGS
Date:	11/23/12
Checked By:	SGS

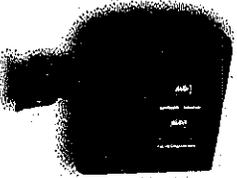
SUNDOWN GARDENS
19653 SIX POINTS RD.
SHERIDAN, INDIANA

REVISION DATE:

SCHEMATIC DESIGN DEVELOPMENT SITE LIGHTING PLAN

SUNDOWN COMMERCIAL GROUP
13400 Old Meridian Street
Carmel, Indiana 46032
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High
lighting
facts

D-Series Size 1 LED Flood Luminaire

<p>Catalog Number</p>
<p>Notes</p>
<p>Type</p>

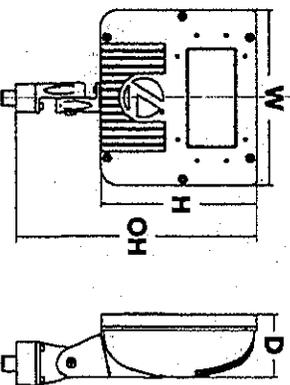
Hit the Tab key or mouse over the page to see all interactive elements.

Dth series

Introduction

The D-Series Size 1 Flood features precision optics to beautifully illuminate a variety of applications while its sleek, compact styling blends seamlessly with the environment.

The D-Series Flood reflector systems and cutting-edge chip-on-board LED technology produce low field-to-beam ratios for minimal spill light and incredible photometric performance. It's the ideal long-life replacement for 50 - 150W metal halide floods, with typical energy savings of 72% and expected service life of over 100,000 hours.



- Specifications**
- EPA:** 0.6 ft² (0.05 m²)
 - Depth:** 3-1/8" (8.0 cm)
 - Width:** 8-7/8" (22.4 cm)
 - Height:** 7-3/4" (19.9 cm)
 - Overall Height:** 12" (30.5 cm)
 - Weight:** 7.2 lbs (3.3 kg)

Ordering Information

EXAMPLE: DSXF1 LED 2 A530/40K MSP MVOLT THK DDBXD

Series	Light Engines	Performance Package	Distribution	Voltage	Mounting	Options	Finish (optional)
DSXF1 LED	1 One COB engine 2 Two COB engines	\$30 mA options: A530/30K 3000K A530/40K 4000K A530/50K 5000K	NSP Narrow spot MSP Medium spot MFL Medium flood FL Flood WFL Wide flood WFR Wide flood, rectangular HMF Horizontal flood	MVOLT ¹ 120 ¹ 208 ¹ 240 ¹ 277 ¹	Shipped included THK Knuckle with 1/2" NPS threaded pipe	Shipped installed PE Photocatalytic button style ² SF Single fuse (120, 277V) ³	DDBXD Dark bronze DBLXD Black DHAXD Natural aluminum DHAXD White

Stock configurations are offered for shorter lead times:

Series	Light Engines	Performance Package	Distribution	Voltage	Mounting	Options	Finish (optional)
DSXF1 LED 1 A530/40K WFL MVOLT THK DDBXD							
DSXF1 LED 2 A530/40K WFL MVOLT THK DDBXD							
DSXF1 LED 2 A530/40K WFL MVOLT THK DDBXD							

Accessories

- DSXF1215 DDBXD U Signifier 1-1/4" H, 2-3/4" OD brass, ends via 1/2" threaded brace (specify brass)
- FRWB DDBXD U Red-to-white bracket, 2-3/8" OD non-specify (each)
- FSR DDBXD U Steel square post bracket, 2-3/8" OD non-specify (specify finish)
- DSXF1LWFR0800 U Upper fixation riser accessory (specify finish)
- DSXF1V DDBXD U Full size accessory (specify finish)
- DSXF1HC U Vandal guard accessory

- NOTES**
- MVOLT driver operates on any line voltage from 120-277V (50/60 Hz). Specify 120, 208, 240 or 277 options only when ordering with lighting (SF option) or photocatalytic (PE).
 - Photocatalytic (PE) requires 120, 208, 240 or 277 voltage option.
 - Single fuse (SF) requires 120 or 277 voltage option.
 - Also available as separate accessories; see Accessories information at left.

For more mounting options, visit our Floodlighting Accessories pages.



Performance Data

Lumen Output

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown, within the tolerances allowed by lighting facts. Actual performance may differ as a result of end-user environment and application. Contact factory for performance data on any configurations not shown here.

Light Engines (lm3)	Base Current (lm3)	Performance Package	System Watts	Incl. Type	Beam Angle		CRI		SIRC						
					#	°	(4000K-7000K)	(CRI)	(5000K-6700K)	(CRI)					
1	530	AS30-K	21W	NRP	48	49	19	19	700	138	66	777	133	66	
					MSR	50	48	24	23	670	155	74	619	150	74
					MLL	60	60	47	46	288	162	79	279	167	79
					FL	85	84	63	62	185	187	86	149	182	86
					WRL	105	106	71	72	131	193	91	131	197	92
					HMR	100	92	80	81	138	143	91	131	197	92
					MSA	44	44	30	30	1300	262	64	133	266	64
					ASD	50	48	41	41	1174	241	72	1278	251	72
					MHE	60	60	40	40	500	313	71	328	333	76
					FL	85	84	63	62	150	248	83	146	207	83
2	530	AS30-L	(1W)	NRP	107	101	81	85	64	269	90	202	190	87	
					WRL	105	106	71	72	131	193	91	131	197	92
					HMR	100	92	80	81	138	143	91	131	197	92
					MSA	44	44	30	30	1300	262	64	133	266	64
					ASD	50	48	41	41	1174	241	72	1278	251	72
					MHE	60	60	40	40	500	313	71	328	333	76
					FL	85	84	63	62	150	248	83	146	207	83
					WRL	105	106	71	72	131	193	91	131	197	92
					HMR	100	92	80	81	138	143	91	131	197	92
					MSA	44	44	30	30	1300	262	64	133	266	64

Lumen Ambient Temperature (LAT) Multipliers

Use these factors to determine relative lumen output for average ambient temperatures from 0-40°C (32-104°F).

Ambient	Lumen Multiplier
0°C	1.27
10°C	1.03
20°C	0.87
25°C	0.77
30°C	0.67
40°C	0.47

Projected LED Lumen Maintenance

Data references the estimated performance projections for the DSXF1 LED 2 AS30 platform in a 40°C ambient, based on 8400 hours of LED testing (tested per IESNA LM-80-08 and projected per IESNA TM-21-11).

To calculate LM: use the lumen maintenance factor that corresponds to the desired number of operating hours below. For other lumen maintenance values, contact factory.

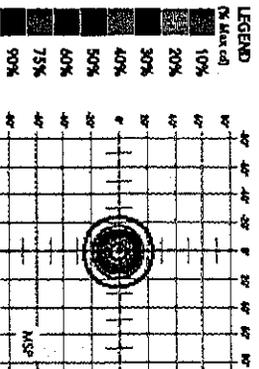
Operating Hours	Lumen Maintenance Factor
1000	0.95
2000	0.90
3000	0.85
4000	0.80
5000	0.75
6000	0.70
7000	0.65
8000	0.60
9000	0.55
10000	0.50

Electrical Load

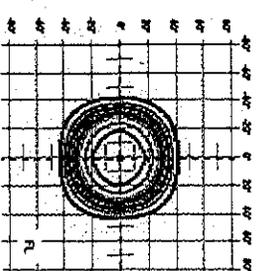
Light Engines (lm3)	Base Current (lm3)	System Watts	Current (A)			
1	530	21W	0.19	0.31	0.10	0.06
			0.38	0.22	0.19	0.16
2	530	41W	0.38	0.22	0.19	0.16
			0.76	0.44	0.38	0.32

Photometric Diagrams

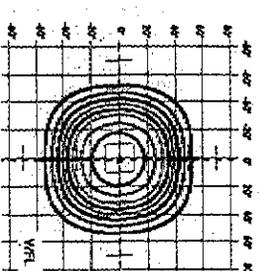
Logarithmic plots for the DSXF1 LED 2 AS30/40K.



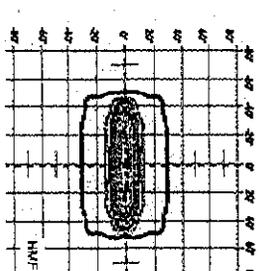
Test No. LTL22173 tested in accordance with IESNA LM-79-08.



Test No. LTL22153 tested in accordance with IESNA LM-79-08.



Test No. LTL22174 tested in accordance with IESNA LV-79-05.



Test No. LTL22159 tested in accordance with IESNA LM-79-08.

To see complete photometric reports or download .ies files for this product, visit Lithonia Lighting's D-Series Flood Size 1 homepage.

FEATURES & SPECIFICATIONS

INTENDED USE

The sleek design of the D-Series Size 1 Flood reflects the embedded high performance LED technology. It is ideal for landscape, signage and accent lighting in many commercial and residential applications.

CONSTRUCTION

Die-cast aluminum housing has integral heat sink fins to optimize thermal management through conductive and convective cooling. The LED driver is mounted in direct contact with the casting to promote low operating temperature and long life. Housing is completely sealed against moisture and environmental contaminants (IP65). Low EMI (EMC Class B) for optimized wind loading.

FINISH

Exterior parts are protected by a zinc-inflated Super Durable TGIC thermoset powder coat finish that provides superior resistance to corrosion and weathering. A tightly controlled multi-stage process ensures a minimum 3 mils thickness for a finish that can withstand extreme climate changes without cracking or peeling.

OPTICS

A variety of precision-molded vacuum-metallized specular reflectors are engineered for superior field-to-beam ratios, uniformity and spacing. Light engines are available in 300K (80 CRI min.), 400K (90 CRI min.) or 5000K (67 CRI min.) configurations. Optional Vision offer additional versatility.

ELECTRICAL

Light engine(s) consist of chip-on-board (COB) LEDs directly coupled to the housing to maximize heat dissipation and promote long life (100,000 hrs at 40°C, L80). Single-engine unit uses a Class 2 electronic driver; dual-engine unit uses a Class 1 electronic driver. Both drivers have a power factor >90%, THD <20%, and an expected life of 100,000 hours. Surge protection meets a minimum Category C Low for 120/277V operation (per ANSI/IEEE C82.41.2).

INSTALLATION

Integral adjustable brackets with 1/2-1/4 NPS threaded pipe facilitates quick and easy installation to a variety of mounting accessories. This secure connection enables the D-Series Size 1 to withstand up to a 1.5 G vibration load rating per ANS1 C136.31.

LISTINGS

CSA certified to U.S. and Canadian standards. Luminaire is IP65 rated. Rated for -40°C minimum ambient.

WARRANTY

Five year limited warranty. Full warranty terms located at www.aquitybrands.com/customerresources/terms_and_conditions.aspx.

Note: Specifications subject to change without notice.



FEATURES & SPECIFICATIONS

INTENDED USE — Typical applications include corridors, lobbies, conference rooms and private offices.

CONSTRUCTION — **LE6L** (Lithonia Construction): Rugged, 16-gauge galvanized steel mounting frame with tension spring bracket to mount the finishing module. Vertically adjustable mounting brackets that use 1/6-gauge flat bar hinges (included), 1/2" conduit or C channel 1-bar fasteners. Provides 3-3/4" total height adjustment.

6ML (Lith Construction): Galvanized steel mounting/plaster frame with tension spring bracket to mount the finishing module. Integral galvanized bar hinges span up to 24" o.c. and feature built-in T-bar clips and nailers for T-bar or wood joist installations.

6MLB (Remodel): Galvanized steel remodel mounting/plaster frame with tension spring bracket to mount the finishing module. Four (4) remodel ANC clips included for remodel installation.

All frames are equipped with galvanized steel junction box UL listed for through wire applications. Junction boxes equipped with two combination 1/2"-3/4" and three 1/2" knockouts for straight-through conduit runs and removable access doors. Capacity: 4 (2 in, 2 out), No. 12 AWG conductors, rated for 90°C.

Post installation adjustment possible from below the ceiling.
Maximum 1-1/2" ceiling thickness.

LED Trim: Rugged, one-piece, die-cast heat sink design for optimum thermal management. Wet location rated lens is tightly fitted to the housing to reduce the ingress of dust.

OPTICS — Elliptical upper reflector and micro prism lens, provides precise beam control. Lower spray recesses optical system into the ceiling to reduce glare and provide a traditional PAR look. Standard fixture has a 0.65 spacing criteria. The luminaire is also available with a 0.95 spacing criteria option for use in general/ambient lighting applications.

(CRI>80)

ELECTRICAL — On-board circuitry to ensure against wiring errors.

Thermal protection provided against improper insulation use.

High-efficiency, electronic LED 0-10V dimming driver mounted to the junction box. dims luminaire to 15% light output.

For dimming fixture requires two (2) additional low-voltage wires to be pulled.

The system maintains 70% lumen output for more than 50,000 hours.

Input wattage for 1000L is 14.2W/74 lumens per watt. Input wattage for 1500L is 18.8W/85 lumens per watt.

Actual wattage may differ by +/-15% when operating between 120-277V +/-10%.

LISTINGS — CSA certified to US and Canadian safety standards. Wet location listed. ENERGY STAR® qualified.

WARRANTY — Five-year limited warranty. Full warranty terms located at:

www.aquitybrands.com/CustomersResources/Terms_and_Conditions.aspx

Note: Specifications subject to change without notice.

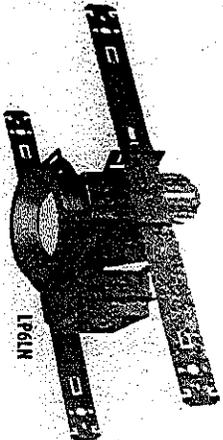
ORDERING INFORMATION — for shortest lead times, configure products using bolded options.

Catalog Number	
Notes	
Type	

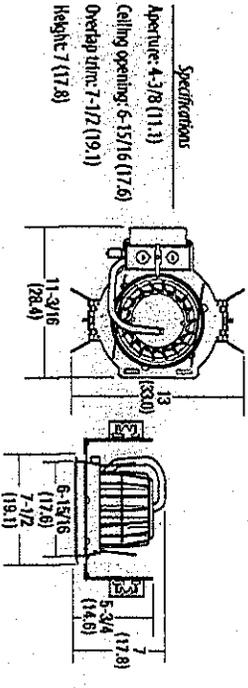
6" LED

REALITY™

Non-IC
New Construction



LE6L



All dimensions are inches (centimeters) unless otherwise noted.

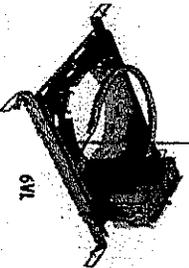
Series	Finish	ESL ENERGY STAR [®] listed	1000L 14.2W/ 1000 lumens	1500L 18.8W/ 1500 lumens	277K 2700K 30K 3000K 35K 3500K 40K 4000K	655C 65 Spacing criteria 95 Spacing criteria	120 277 347 ²	LP6LH 1000L ² LP6LH 1500L ² 6VL 1000L ² 6VL 1500L ² 6VLR 1000L ² 6VLR 1500L ²	FRHW Matte white plastic flange ring PRBL Black plastic flange ring ELR Emergency battery pack with remote test switch HSD ² Sensor Switch nLight™ dimming relay GMF Single slow-blow fuse, must specify voltage ISH Insect shield
REAL6C D6	6" open downlight	AW Matte white A Clear diffuse AZ Clear specular BN Brushed nickel BLZ Black specular BZA Antique bronze ORB Oil-ribbed bronze WT Wheat diffuser							

Notes

1. Total system nominal delivered lumens.
2. Using step-down transformer increases power draw by 15 watts.
3. Luminaires only required when ordered separately.
4. Not available with 347V.
5. One 5A relay with one 0-10VDC dimming output, shipped installed. Requires additional in-light bus power supply.



6VLR



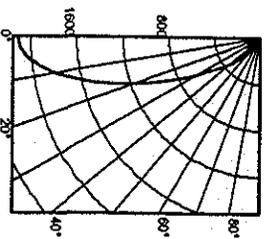
6VL

REALITY™ 6" LED ENERGY STAR®

PHOTOMETRICS

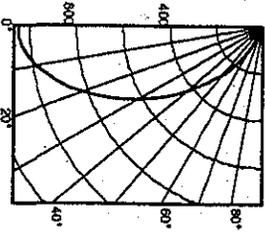
Distribution Curve	Distribution Data	Output Data	Coefficient of Utilization	Illuminance Data at 30° Above Floor for a Single Luminaire
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REAL6C D6MW ESL 35K 1500L .655C, Input watts: 18.8, delivered lumens: 1607, .65 spacing, LM/W=85, test no. DTL21387



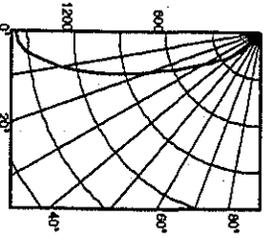
Zone	Lumens % Lamp	Lumens	% Util	Coefficient of Utilization					Illuminance Data at 30° Above Floor for a Single Luminaire					
				50%	30%	20%	10%	5%	50%	30%	20%	10%	5%	
0°-30°	1002.4	62.4	62.4	110	118	119	118	118	111	111	111	111	111	111
0°-40°	1308.2	81.4	81.4	110	107	108	108	105	104	102	100	97	93	90
0°-60°	1579.2	98.2	98.2	102	97	94	93	89	86	84	80	78	75	72
0°-80°	1807.7	100.0	100.0	84	80	84	80	80	76	74	70	68	64	60
90°-180°	0.0	0.0	0.0	87	81	77	80	80	76	74	70	73	68	64
0°-180°	1607.7	1600.0	100.0	81	75	70	75	69	65	62	59	59	54	50
Efficiency				78	69	65	70	64	60	56	52	52	48	44
				67	60	56	60	50	46	43	40	38	35	32
				63	57	52	57	46	42	39	36	34	31	28
				59	53	49	53	43	39	36	33	31	28	25
				56	53	49	50	41	37	34	31	29	26	23
				53	48	45	47	38	34	31	28	26	23	20
				53	48	45	46	37	33	30	27	25	22	19
				50	43	38	41	32	28	25	22	20	17	14
				50	43	38	39	30	26	23	20	18	15	12

REAL6C D6MW ESL 1500L 35K .955C, Input watts: 18.8, delivered lumens: 1520, .95 spacing, LM/W=81, test no. DTL21389



Zone	Lumens % Lamp	Lumens	% Util	Coefficient of Utilization					Illuminance Data at 30° Above Floor for a Single Luminaire					
				50%	30%	20%	10%	5%	50%	30%	20%	10%	5%	
0°-30°	679.4	44.7	44.7	110	118	119	118	118	111	111	111	111	111	111
0°-40°	1002.5	65.8	65.8	108	105	102	100	100	97	97	93	89	85	81
0°-60°	1432.8	84.2	84.2	88	83	88	86	91	87	84	79	75	71	67
0°-80°	1820.9	100.0	100.0	80	82	77	87	81	76	74	70	67	64	60
90°-180°	0.0	0.0	0.0	80	73	68	79	73	67	64	60	57	54	50
0°-180°	1520.9	1500.0	100.0	73	66	61	72	65	60	57	54	51	48	45
Efficiency				67	60	54	66	58	54	50	46	43	40	37
				62	55	49	61	51	46	42	38	35	32	29
				62	55	49	57	47	42	38	34	31	28	25
				57	50	45	53	43	38	34	30	27	24	21
				53	46	41	50	40	35	31	27	24	21	18
				53	46	41	48	38	33	29	25	22	19	16
				50	43	38	41	32	28	24	21	18	15	12
				50	43	38	39	30	26	22	19	16	13	10

REAL6C D6MW ESL 1000L 35K .655C, Input watts: 14.2, delivered lumens: 1057, .65 spacing, LM/W=74, test no. DTL21373



Zone	Lumens % Lamp	Lumens	% Util	Coefficient of Utilization					Illuminance Data at 30° Above Floor for a Single Luminaire					
				50%	30%	20%	10%	5%	50%	30%	20%	10%	5%	
0°-30°	676.6	64.0	64.0	110	118	119	118	118	111	111	111	111	111	111
0°-40°	878.4	83.1	83.1	102	98	94	100	95	93	89	86	83	80	78
0°-60°	1097.7	98.1	98.1	88	82	78	87	81	77	74	70	67	64	60
0°-80°	1057.8	100.0	100.0	86	82	78	81	75	71	68	65	62	59	56
90°-180°	0.0	0.0	0.0	82	78	71	81	75	71	68	65	62	59	56
0°-180°	1057.8	1000.0	100.0	77	71	66	76	70	66	63	60	57	54	51
Efficiency				72	66	62	71	66	61	57	54	51	48	45
				68	62	57	67	61	57	53	50	47	44	41
				68	62	57	64	58	54	50	46	43	40	37
				64	58	54	64	54	49	45	41	38	35	32
				64	58	54	60	50	45	41	37	34	31	28
				61	55	51	60	50	45	41	37	34	31	28
				61	55	51	57	47	42	38	34	31	28	25
				58	52	48	56	46	41	37	33	30	27	24
				58	52	48	54	44	39	35	31	28	25	22

27K	0.83
30K	0.94
35K	1.00 (0.85 Spacing)
40K	1.03

Grey Linings (A)	1401
White White (AW)	1300
4-Step Spectral (A2)	1200
Violet (V1)	0.98
Round Wood (R1)	0.97
Black Spectral (B1Z)	0.96
Antique Bronze (B7A)	0.95
Oil-Rubbed Bronze (R10)	0.95

Notes

- Actual performance may differ as a result of end-user environment and application.



An SCAUDY Brands Company

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REALITY-6-LED-COMMERCIAL-ESL