INFORMATION FOR BIDDERS

1. PROPOSAL

The Proposal shall consist of the completed Bid Form bound with the specifications as furnished by the City, a bid bond or certified check, a power of attorney for the agent signing the bid bond, a non-collusion affidavit, a Qualification Questionnaire Form 96, and the attached non-collusion affidavit. Three copies of the proposal must be contained in a sealed envelope which shall be properly marked on the outside to show the name of the bidder, name of the work being bid upon, and the time when said bids are scheduled to be opened.

2. NON-COLLUSION AFFIDAVIT

The affidavit on non-collusion must be made by the person, member of the firm, or authorized officer of the corporation making the proposal. If made by a member of a firm or officer of a corporation, the affidavit must be made on behalf of said firm or corporation.

3. SIGNATURES

Each proposal must be signed in ink by the person, member of firm, president, or vice president, and the secretary of the corporation, making the proposal. The title, position, or character of the person signing said proposal must be shown under said person's name.

4. FILING

All proposals on file at the time scheduled for opening will be publicly opened and read. They shall be available thereafter for inspection by any interested party.

5. WITHDRAWAL OF PROPOSAL

No proposal may be withdrawn, altered, or qualified after the scheduled time for opening. All proposals shall remain in effect for thirty (30) days unless set out otherwise in the advertised Notice to Bidders.

6. RIGHT TO REJECT BIDS

The City expressly reserves the right to reject any and all bids and to judge the character and sufficiency of any samples of materials submitted or materials bid upon.

7. AWARD

The City will, without unnecessary delay and at the earliest possible time, make the award to the lowest responsive and responsible bidder. The award will be based on the base bid.

8. FORMS

All required forms are to be completed by each bidder and returned with the specifications.

Contents of bid package must be clearly marked on outside of sealed envelope and contain 3 copies of your bid or proposal. A duplicate set of the bid form in electronic format may be secured from the engineer's office for the bidder's use.

9. PRICES

Prices must always be stated in figures and shall be stated in words also where requested. All prices must be so distinctly expressed that there can be no doubt as to the meaning thereof. Illegible figures shall be just cause for rejection of any proposal.

10. BID BOND - CERTIFIED CHECK

Each bidder shall include as part of the proposal a certified check, a cashier's check, or a satisfactory bid bond in an amount of not less than 10 percent (10%) of the bid amount. In no case shall any check or bond be less than the sum of one hundred dollars ($100). Each check shall be certified by a reputable bank doing business in the State of Indiana. Certified checks will be returned to bidders whose proposals are rejected. The check or bond submitted by the successful bidder shall be retained by the City until said bidder has entered into contract and posted satisfactory performance bond. If the successful bidder does refuse or neglect to enter into a contract with the City within seven (7) days from the time of notification of the acceptance of the bid, said check or bond shall be forfeited to the City and liquidated damages as ascertained for failure to do so.

11. UNIT PRICES

Bidders must divide their bid amount into unit prices as called for on bid form included in the Proposal.

12. ESTIMATED QUANTITIES

The estimated quantities shown on the Bid Form and the Engineer's estimates of the quantities required to complete the work shown on the plans, or required by the specifications, or both, are intended to be true and correct but are not guaranteed. If there is a difference between the quantities shown on the Bid Form and the quantities actually required to complete the work as shown on the plans or required by the specifications, or both, the plans and specifications shall govern. If the plans are changed by the direction of the City Engineer, the contract will be altered by change order to cover the necessary additions or deductions completed at the unit price submitted by the bidder. Insertion of new items in the bid form by the bidder may result in the Proposal being declared a counter proposal and may result in it being rejected.

13. PERFORMANCE BOND/INSURANCE

At the time of signing the contract, the successful bidder will be required to furnish 100% Performance and Payment Bond and a certificate of insurance as provided by the General Specifications.

14. QUALIFICATIONS

Persons, firms, or corporations submitting proposals shall be prepared to demonstrate to the satisfaction of the City Engineer that they have the proper facilities, expert workers, necessary capital, and experience to execute the contract in a proper manner.

15. CHOICE OF MATERIALS AND EQUIPMENT

In cases where the specifications permit the choice of one material from a group of two or more satisfactory materials, the City Engineer reserves the right to designate the material that shall be used, unless the Bidder makes a designation of the material being bid upon, when he submits his proposal. The same condition applies to equipment.

16. EXAMINATION OF PLANS, SPECIFICATIONS, AND SITES

Plans and Specifications are on file in the office of the City Clerk-Treasurer and Bidders are expected to examine them before submitting their proposals. Bidders must satisfy themselves by personal examination of the location of the proposed work, and by such other means as they may choose, as to the accuracy of the estimates of the work to be done, and shall not at any time after the opening of the bids dispute or complain of the statement or estimate of the Engineer, nor assert that there was any misunderstanding as to the nature or amount of the work to be done. The estimate is believed to be correct, but the City will not be responsible for any errors in the estimate or for any omissions in the plans.

17. PAYMENT

The cost of improvements herein provided for may be paid for by special assessment, by tax funds, or by donated monies or any combination thereof as set out elsewhere in these proceedings.

NOTICE TO BIDDERS

City of Columbus, Indiana

Notice is hereby given that the Board of Public Works and Safety for the City of Columbus, Bartholomew County, Indiana will receive sealed bids for the **"City of Columbus Project No. #14-04 Woodside FDR Project"** at the office of the City Clerk-Treasurer, 123 Washington Street, Columbus, Indiana (City Hall) on or before **Monday April 14, 2014, 3:30 pm E.S.T.** Commencing as soon as practicable thereafter on the same date, such bids will be publicly opened and read aloud during the meeting of the Board of Public Works and Safety in the Council Chambers of City Hall, or as soon thereafter as the orderly transaction of business of the Board will allow. **No late bids will be accepted.**

All bids shall be properly and completely executed on the proposal forms provided with the plans and specifications including the non-collusion affidavit and Form 96 – Contractor's Bid for Public Works, as required by the State Board of Accounts. Form 96 is available on the State of Indiana Government website at www.in.gov, and entering "Form 96" in the search engine.

A bid bond or certified check in an amount of ten percent (10%) of the amount bid, and made payable to the City of Columbus, Indiana, must be submitted with each bid as guaranty that the terms of the bid will be carried out. All bonds must be secured from a bonding company as listed in the current edition of the U.S. Treasury Department, Circular #570, and authorized to transact business in the State of Indiana. The Board of Public Works and Safety reserves the right to reject any and all bids.

The project consists of, but is not necessarily limited to, the following:

#14-04 Woodside FDR Project

Contract Documents for the Project prepared and certified by the City Engineer or a designated Consultant, setting forth in detail the drawings, plans and specifications for said division work, are available online at www.columbus.in.gov., "Engineering" under the Department Heading, and then "Bid Documents" under the "Menu." **It is the sole responsibility of the contractor to revisit the site up until the bid date, for any changes or additions to project documents.** If you have any questions, please contact the City Engineer's Office at 812-376-2540.

All contractors, subcontractors, and bidders for contracts with the City of Columbus shall be required to submit a written Comprehensive Compliance Form (CCF) regarding requirements as to Affirmative Action, Disqualification of Contracts dealing with the government of Iran, a Drug Free Workplace, OSHA and IOSHA Regulation, and Employment Eligibility Verification. A CCF encompassing all of the provisions stated above will be supplied by the City and be required to be submitted with any bid. If awarded the contract, said provisions in the CCF will be incorporated into the final contract. Failure to submit the CCF will constitute a material defect in the bid. In addition a breach of a covenant in the CCF may be considered a material breach of any final contract.

Wage rates for the Project shall not be less than the current prescribed scale of wages as determined by the Common Construction Wage Committee in accordance with I.C. 5-16-7.

No bidder may withdraw any bid or proposal within a period of thirty (30) days following the date set for receiving bids or proposals. The Board of Public Works and Safety reserves the right to waive informalities and reserves the right to reject and/or cancel any and all bids, solicitations and/or offers in whole or in part as specified in the solicitations when it is not in the best interests of the governmental body as determined by the purchasing agency in accordance with I.C. 5-22-18-2.

A one hundred percent (100%) performance and payment bond will also be required of the successful bidder. It is intended that actual construction of all work divisions shall be started as soon as practicable, and each bidder shall be prepared to enter promptly into a construction contract, furnish a performance bond, furnish a certificate of insurance, and begin work without delay in the event the award is made to him.

For special accommodations needed by physically challenged individuals planning to attend the bid opening please call 812-376-2570 or TDD 812-375-2720 at least forty-eight (48) hours prior to the meeting.

Publish: The Republic – March 28, 2014 and April 4, 2014

INFORMATION FOR BIDDERS

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The cost of improvements herein provided for may be paid for by special assessment, by tax funds, or by donated monies or any combination thereof as set out elsewhere in these proceedings.

April 14, 2014

BID FORM
WOODSIDE FDR PROJECT
#14-04

Contractor proposes to complete the improvements, as specified and shown on attached plan, by **June 30, 2014** for the following Bid Price. The price includes all labor and material. Award will be based on the Total Bid Amount. Failure to complete project on time, not including weekends and holidays, will result in the penalty per current INDOT specifications; Section 108.09, as liquidated damages from any money due the contractor.

Item	Unit	Quantity	Unit Price	Total
1. 6" Underdrain w/sock and # 8 Stone	lf	36,225	$_____	$_____
2. 6" Full Depth Reclamation	sys	3750	$_____	$_____
3. 7" Full Depth Reclamation	sys	9600	$_____	$_____
4. 8" Full Depth Reclamation	sys	29000	$_____	$_____
5. 9" Full Depth Reclamation	sys	6600	$_____	$_____
6. Driveway Approach Mix	tons	200	$_____	$_____
7. 3" Overlay 9.5mm HMA Surface	tons	8100	$_____	$_____
8. Add 3" Millings to Interlake Drive	ls	1	$_____	$_____
9. Type A Inlet Box & Neenah R3305 Curb Frame, lid	each	2	$_____	$_____
10. 20" Curb and Gutter, 8" Reveal	lf	390	$_____	$_____
11. 12" N 12 HDPE w/ Rip Rap & Geogrid	lf	30	$_____	$_____
12. 16" O.D. HDPE SDR 32.5 pipe with locking water tight joint	lf	80	$_____	$_____
13. 12" RCP Class V pipe	lf	88	$_____	$_____
14. 15" RCP class V pipe	lf	56	$_____	$_____
15. 36" RCP Class V Pipe w/ Concrete End Sections Included	lf	72	$_____	$_____
16. 24" RCP Class V Pipe w / Concrete End Sections Included	lf	80	$_____	$_____
17. Re grading, seed and mulch road side swales	sys	15000	$_____	$_____
18. Rip Rap (undistributed amount)	ton	400	$_____	$_____
19. Stop Bar Thermoplastic 12"	lf	120	$_____	$_____
20. Lane Line, Thermoplastic	lf	5100	$_____	$_____
21. Traffic Control	ls	1	$_____	$_____
22. Fog Seal (as required)	gals		$_____	$_____

Total Bid, summation of items **'1' thru '22'** **$**_____

And In Words _____

Signature_____

Company_____

Address_____

Phone _____

Acceptance by Columbus Board of Public Works and Safety:

Date:

_____
Kristen S. Brown, Mayor

_____
Jayne Farber, Member

_____
Attest: Luann Welmer, City Clerk-Treasurer

_____
Robert A. Crider, Member

_____
Robert F. Sullivan, Member

Associated Builders and Contractors of Indiana

Bartholomew County – 2014

Classifications	Classes	Wage	Fringe	Total
Asbestos Abatement				
-Removes and discards asbestos materials				
	Skilled	23.44	6.80	30.24
	Semi-skilled	N/A	N/A	N/A
	Unskilled	N/A	N/A	N/A
Brick/Block/Stone/Cement Mason				
-Lays and sets building materials, brick and stone, and finishes surfaces				
	Skilled	21.70	5.62	27.32
	Semi-skilled	15.12	5.17	20.29
	Unskilled	11.66	4.11	15.77
Carpenter				
-Constructs, erects, installs and repairs various woods and wallboards				
	Skilled	21.00	6.18	27.18
	Semi-skilled	13.43	4.80	18.23
	Unskilled	10.90	3.95	14.85
Interior Finish Technician				
-Erects metal framing, installs drywall, seals and plasters				
	Skilled	19.00	5.00	24.00
	Semi-skilled	12.68	4.00	16.68
	Unskilled	10.00	3.50	13.50
Electrician				
-Plans, installs, and repairs wiring, fixtures, lines and instrumentation controls				
	Skilled	24.35	7.05	31.40
	Semi-skilled	16.00	5.90	21.90
	Unskilled	12.12	4.61	16.73
Sound and Communication				
-Installs data hardwiring				
	Skilled	19.05	5.50	24.55
	Semi-skilled	14.41	4.70	19.11
	Unskilled	10.80	4.00	14.80
Glazier				
-Installs glass in windows or on surfaces				
	Skilled	20.20	5.60	25.80
	Semi-skilled	13.19	4.40	17.59
	Unskilled	11.30	3.80	15.10
Mechanical Insulator				
-Covers, seals, fits, measures, cuts, and attaches insulating materials				
	Skilled	22.68	6.18	28.86
	Semi-skilled	16.90	5.86	22.76
	Unskilled	12.20	4.02	16.22

Bartholomew County – 2014 (Continued) Associated Builders and Contractors of Indiana

Classifications	Classes	Wage	Fringe	Total
Iron Worker				
-Raises, places, and unites girders and columns of structural steel				
	Skilled	23.60	6.95	30.55
	Semi-skilled	16.95	6.21	23.16
	Unskilled	12.95	5.13	18.08
Metal Building Mechanic				
-Assembles prefabricated metal buildings				
	Skilled	18.54	4.95	23.49
	Semi-skilled	13.20	4.00	17.20
	Unskilled	10.45	3.60	14.05
Millwright				
-Installs machinery and equipment				
	Skilled	21.80	5.70	27.50
	Semi-skilled	15.00	4.60	19.60
	Unskilled	12.00	3.99	15.99
Painter				
-Applies various liquid coverings to surfaces				
	Skilled	18.80	4.87	23.67
	Semi-skilled	12.60	3.70	16.30
	Unskilled	9.75	3.00	12.75
Roofer				
-Covers roof with roofing materials				
	Skilled	19.38	5.04	24.42
	Semi-skilled	12.15	4.38	16.53
	Unskilled	10.87	3.60	14.47
Sprinkler Fitter				
-Installs and repairs fire protection systems				
	Skilled	22.60	6.20	28.80
	Semi-skilled	14.00	5.75	19.75
	Unskilled	11.00	4.25	15.25
Floor Coverer/Setter				
-Sets tile and terrazzo, applies pigment and marble, and lays carpet				
	Skilled	17.80	4.43	22.23
	Semi-skilled	12.30	3.80	16.10
	Unskilled	10.00	3.25	13.25
Truck Driver				
-CDL-licensed to transport equipment, liquid, packaged or granular dirt and moves personnel				
	Skilled	16.12	4.10	20.22
	Semi-skilled	N/A	N/A	N/A
	Unskilled	N/A	N/A	N/A

Bartholomew County – 2014 (Continued) Associated Builders and Contractors of Indiana

Classifications	Classes	Wage	Fringe	Total
Operating Engineer				
-Operates all types of power construction and heavy equipment				
* Not a practice in the industry to put unskilled workers on pieces of equipment*	Skilled	22.50	6.88	29.38
	Semi-skilled	15.95	5.16	21.11
	Unskilled	N/A	N/A	N/A
Mechanical Technician (HVAC, Sheet Metal)				
-Fabricates, assembles, installs, and repairs sheet metal products and HVAC equipment				
	Skilled	23.33	6.05	29.38
	Semi-skilled	16.05	5.24	21.29
	Unskilled	13.00	4.80	17.80
Pipe Worker (Plumber, Pipefitter)				
-Fabricates, assembles, installs and maintains piping and piping systems, fixtures and equipment for processing systems and drainage systems				
	Skilled	24.19	6.95	31.14
	Semi-skilled	17.00	5.95	22.95
	Unskilled	13.84	5.00	18.84
Elevator Constructor				
-Installs and repairs elevator equipment				
	Skilled	25.40	7.50	32.90
	Semi-skilled	18.65	6.24	24.89
	Unskilled	14.00	4.77	18.77
General Labor				
-Laborers and helpers, in general				
	Skilled	15.00	4.00	19.00
	Semi-skilled	11.10	3.05	14.15
	Unskilled	9.75	2.50	12.25

Project Name: City of Columbus: Construction Projects

Common Wage Committee:

Dated this day: Thursday, March 20, 2014

Representing Associated Builders and Contractors of Indiana

Awarding Agency (Industry Rep)

Indiana AFL-CIO

Awarding Agency (Taxpayer)

Commissioners-County (Taxpayer)

ADDRESS FORM FOR CONTRACTOR, AGENT AND SUPERINTENDENT

Contractor's Name _____

Home Office _____

Address _____

Telephone/Fax/Email _____/_____/_____

Contractor's Agent _____

Address of Agent _____

Telephone/Fax/Email _____/_____/_____

Contractor's Superintendent _____

Address of Superintendent _____

Telephone/Fax/Email _____/_____/_____

Contractor's Foreman _____

Address of Foreman _____

Telephone/Fax/Email _____/_____/_____

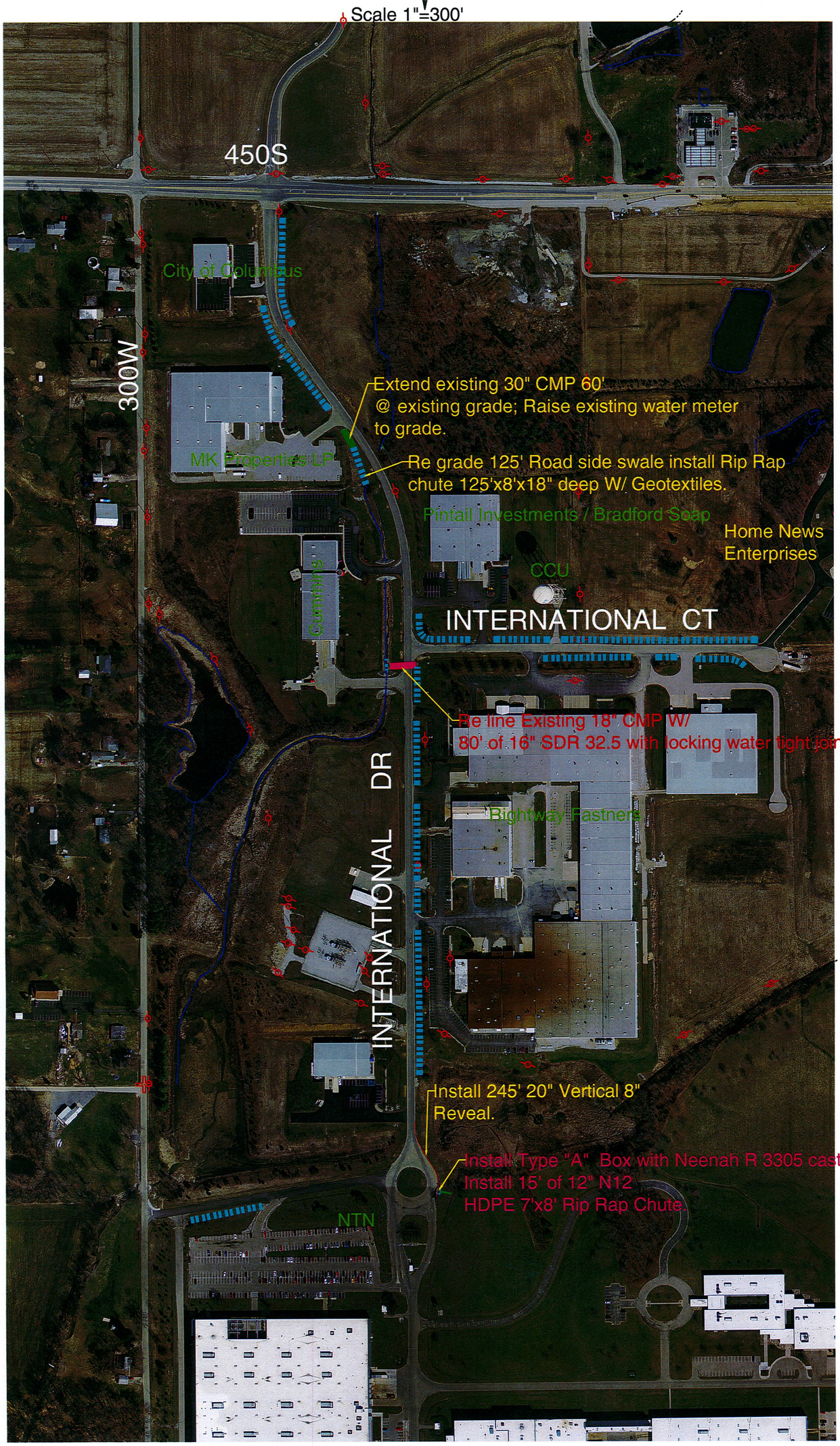
This form shall be filled out and forwarded to the City Engineer before the work is commenced. See Specification No. 100, Paragraph A 44.

Estimate of Qauntities
2014 FDR

Street Name	From	To	Length	Width	Syds	Overlay 3" TonS	Loop Detectors: Each
Old Lane	CR Rd 450 S	Inwood Drive					
6" Underdrain			1390				
8" FDR			695	37	2857.22		
Overlay			695	37	2857.22	471.44	
Detector loops (Circular)							
Remove CMP Backfill w #53 Stone & 12" Rap			105				6
New 24"x36" Alum. Arch Pipe			105				
Re grade road side swale			1455	12	1940.00		
Remove existing Concrete patch (11x24) backfill w #53 Compacted stone & 8" min, Rap			7	37	28.78		
Interlake Drive	Inwood Dr	Norcross					
6" Underdrain 18" deep			2580				
8" FDR			1290	24	3440.00		
Overlay			1290	24	3440.00	567.60	
Remove existing 12" CMP Replace w New 12" RCP Cl V Pipe			40				
Re grade road side swale			2700	10	3000.00		
Barker Drive	Interlake Dr	Inwood Drive					
6" Underdrain			2800				
6" FDR			1400	24	3733.33		
Overlay			1400	24	3733.33	616.00	
Add 3" of Millings			1400	24	3733.33		
Inwood Dr	Interlake Dr	Norcross					
6" Underdrain			4900				
9" FDR			2450	24	6533.33		
Overlay			2450	24	6533.33	1078.00	
Remove CMP Backfill w #53 Stone & 12" Rap							
Re grade road side swales			3060	12	4080.00		
Remove existing Concrete patch (11x24) backfill w #53 Compacted stone & 8" min, Rap			11	24	29.33		
Norcross	CR Rd 450 S	Inwood Drive					
6" Underdrain			4240				
8" FDR			2120	24	5653.33		
Overlay			2120	24	5653.33	932.80	
Remove existing Concrete			6	24	16.00		
			6	40	26.67		
Re grade road side swale			710	12	946.67		
175 West	CR Rd 450 S	Deaver Road					
6" Underdrain			10560				
8" FDR			5280	24	14080.00		
Overlay			5280	24	14080.00	2323.20	
Remove Existing CMP Replace w/ 12" RCP Class V			48				
Re grade road side swale			3065	6	2043.33		
International Dr	SR. 58	International Dr. (Westbound)					
6" Underdrain			7168				
7" FDR			3584	24	9557.33		
Overlay			3584	24	9557.33	1576.96	
20" Vertical Curb			240				
Type " A" Box and Neenah R3305 Frame and Cover							
Re grade road side swale			2225	12	2966.67		
	International Dr	Terminus					
6" Underdrain			2260				
8" FDR			1115	24	2973.33		
Overlay			1115	24	2973.33	490.60	
Re grade road side swale			1470	12	1960.00		
Road swales					14996.67		
Total length of Overlay			17934.00			8056.60	
total lineal ft of Underdrain			35898.00				
6"fdr					3750.00		
7"fdr					9600.00		
8"fdr					29003.89		
9"fdr					6600.00		
					48953.89		

N

Scale 1"=300'

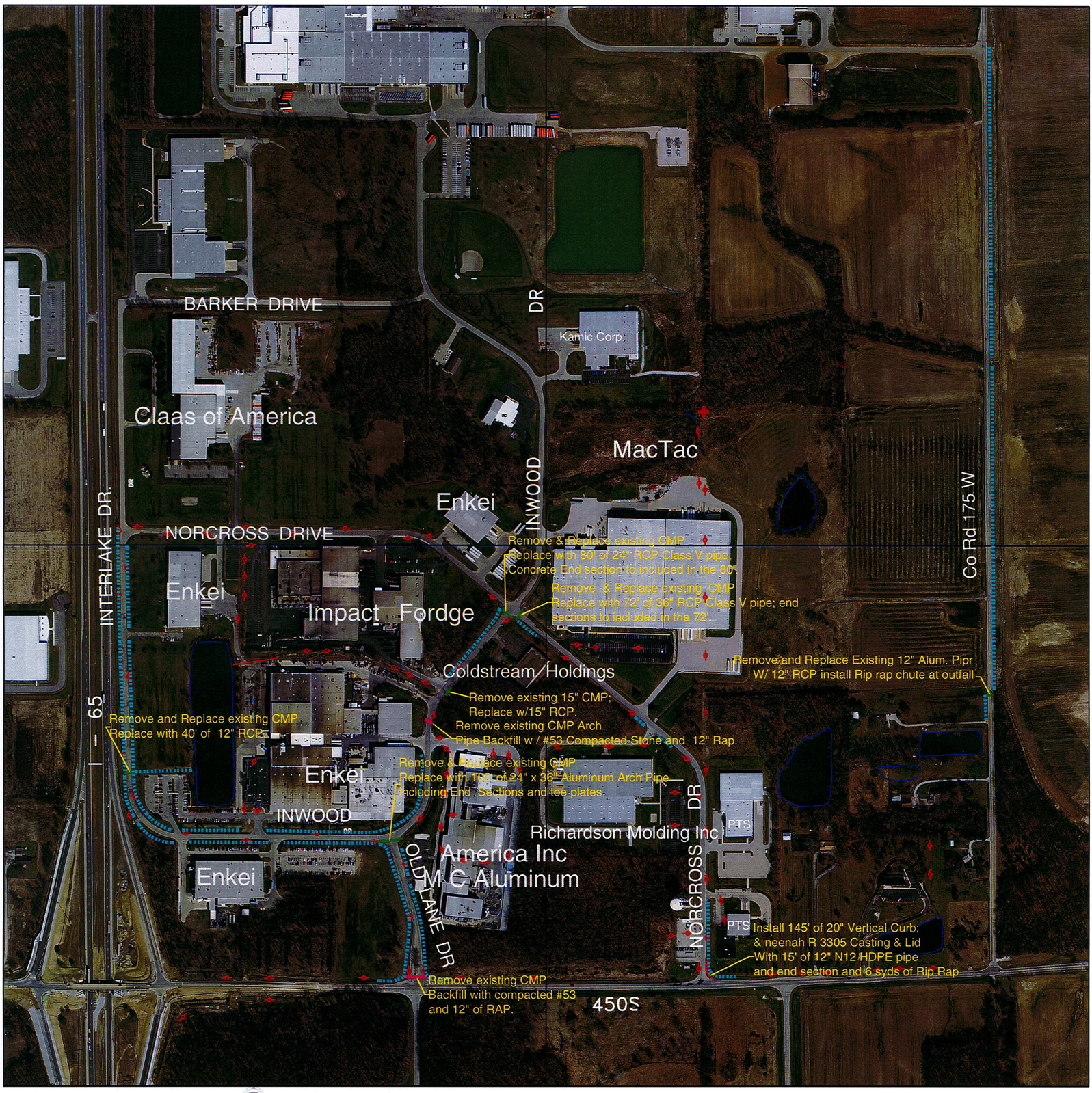


LEGEND

- Road Side swale Re grading
- Pipe Extention
- Pipe Re lining

N

Scale 1"=500'



LEGEND

- Road side swale re grading
- Pipe replacement
- Pipe removal

SAMPLE CONTRACT

This Contract made the _____ day in _____, 2014, by and between, _____, hereinafter referred to as the Contractor, and the City of Columbus, Columbus, Indiana, hereinafter called the Owner.

WITNESSETH: That the Contractor and the Owner for the consideration herein agree as follows:

ARTICLE I - SCOPE OF WORK - The Contractor shall perform and guarantee everything required to be performed or guaranteed and shall provide and furnish all labor, materials, except as otherwise specifically provided, necessary tools, expendable equipment, and all utility and transportation services required to perform and complete in workmanlike manner the construction of:

#14-04

Woodside FDR Project

In the City of Columbus, Indiana, all in accordance with the plans and specifications, which plans and specifications are made a part of this Contract; and the contractor shall do everything required by this Contract and the other documents constituting a part thereof.

ARTICLE II - THE CONTRACT PRICE - The Owner shall pay to the Contractor for the performance of this contract, subject to any additions or deductions provided therein, the sum of **$ XXX**

ARTICLE III - PAYMENTS - Payments are to be made to the Contractor in accordance with and subject to the provisions embodied in the documents made a part of this Contract; and are conditioned upon the Contractor furnishing the Owner with satisfactory evidence that all payrolls, material bills and other costs incurred by the first part in connection with the construction of the work have been paid in full.

ARTICLE IV - ROYALTIES AND PATENTS - The Contractor agrees to pay for all royalties and patents, including those applying to processes, and further agrees to defend all suits or claims for infringement on any patent rights, and to save the Owner and his agents harmless

from the loss or expense on account thereof.

ARTICLE V - COMPONENT PARTS OF THIS CONTRACT - This Contract consists of the following component parts, all of which are as fully a part of this contract as if herein set out verbatim, or if not attached, as if hereto attached:

1. Special Conditions
2. General Conditions
3. Specifications, including all Addenda
4. Plans
5. This Instrument
6. Proposal
7. Information for Bidders
8. Notice to Bidders
9. Bid Form

In the event that any provision in any of the above component parts of this Contract conflicts with any provision in any other of the component parts, the provision in the component part first enumerated above shall govern over any other component part which follows it numerically, except as may be otherwise specifically stated.

ARTICLE VI - GUARANTEE - The Contractor hereby agrees to protect Owner against imperfections in materials, equipment and workmanship, which may be or which may become apparent during the period of construction or erection, or which may develop within a period of one year subsequent to the date of a final acceptance by the City of Columbus, Indiana, and the Contractor shall, at his own expense, remove and replace in whole or in part any such work, materials, or equipment which may prove defective or unsuitable for the service performed or to be performed and/or which may show unreasonable deterioration within said period, upon the written demand and to the full satisfaction of the Owner.

IN WITNESS WHEREOF, the parties hereto have caused this instrument to be executed in three original counterparts the day and year first above written.

CONTRACTOR	OWNER
	City of Columbus, Indiana A Municipal Corporation
BY_____	By_____ Kristen S. Brown, Mayor
_____	_____ Jayne Farber, Member
TITLE_____	_____ Robert A. Crider, Member
	_____ Robert F. Sullivan, Member
	Members of the Board of Public Works and Safety, City of Columbus, Indiana
ATTEST:	ATTEST:
_____ Secretary for Corporation	_____ Luann Welmer, Clerk-Treasurer of the City of Columbus, Indiana
SEAL	SEAL

#14-04

Woodside FDR Project

Please direct all questions about this project

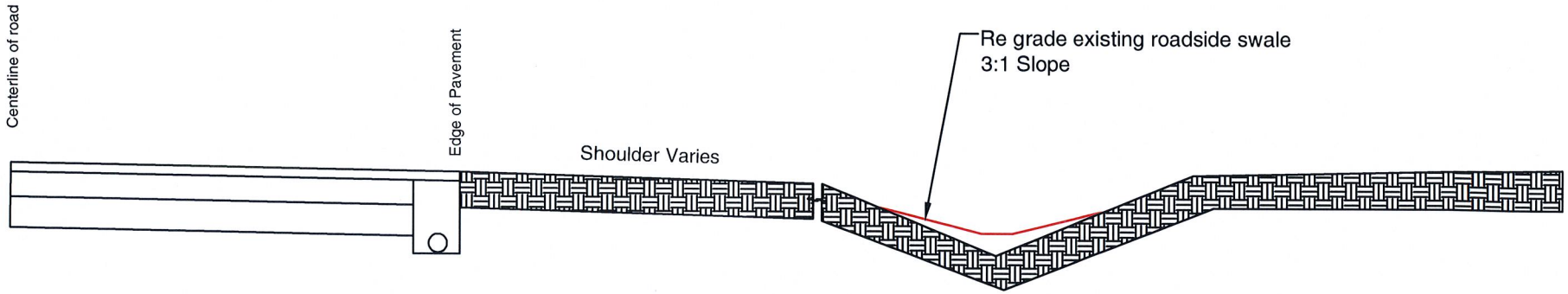
by email only to

rsims@columbus.in.gov

AND

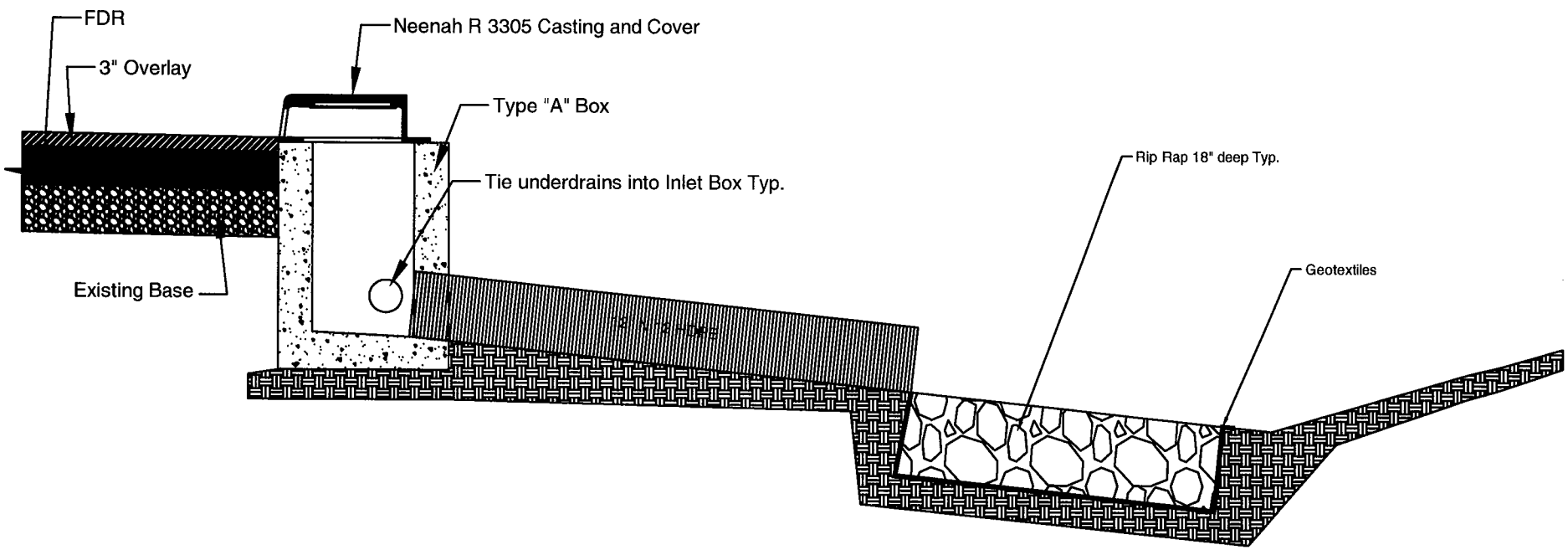
amorris@columbus.in.gov

Thank you.



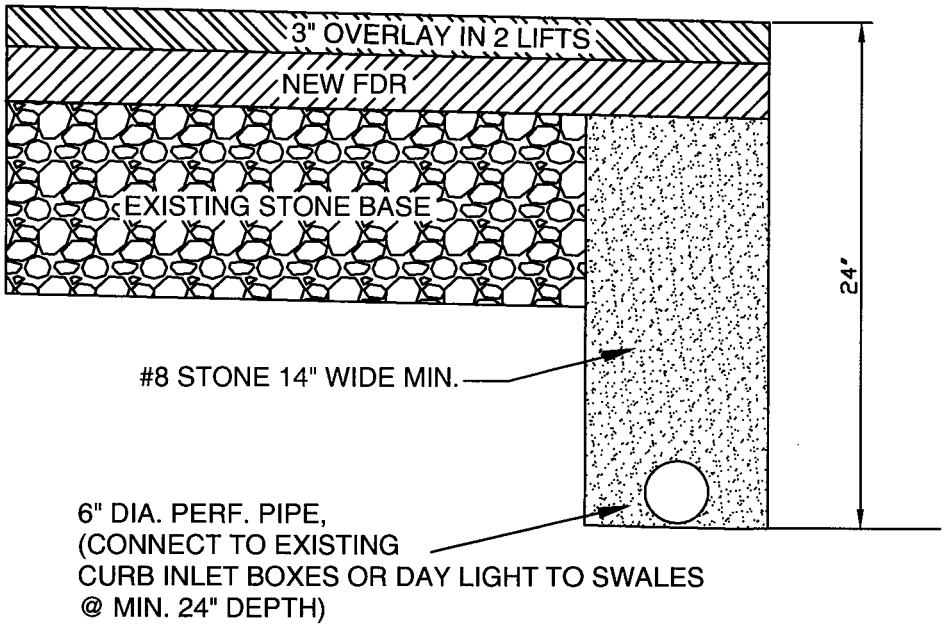
TYPICAL SECTION

NTS



Inlet Detail

NTS

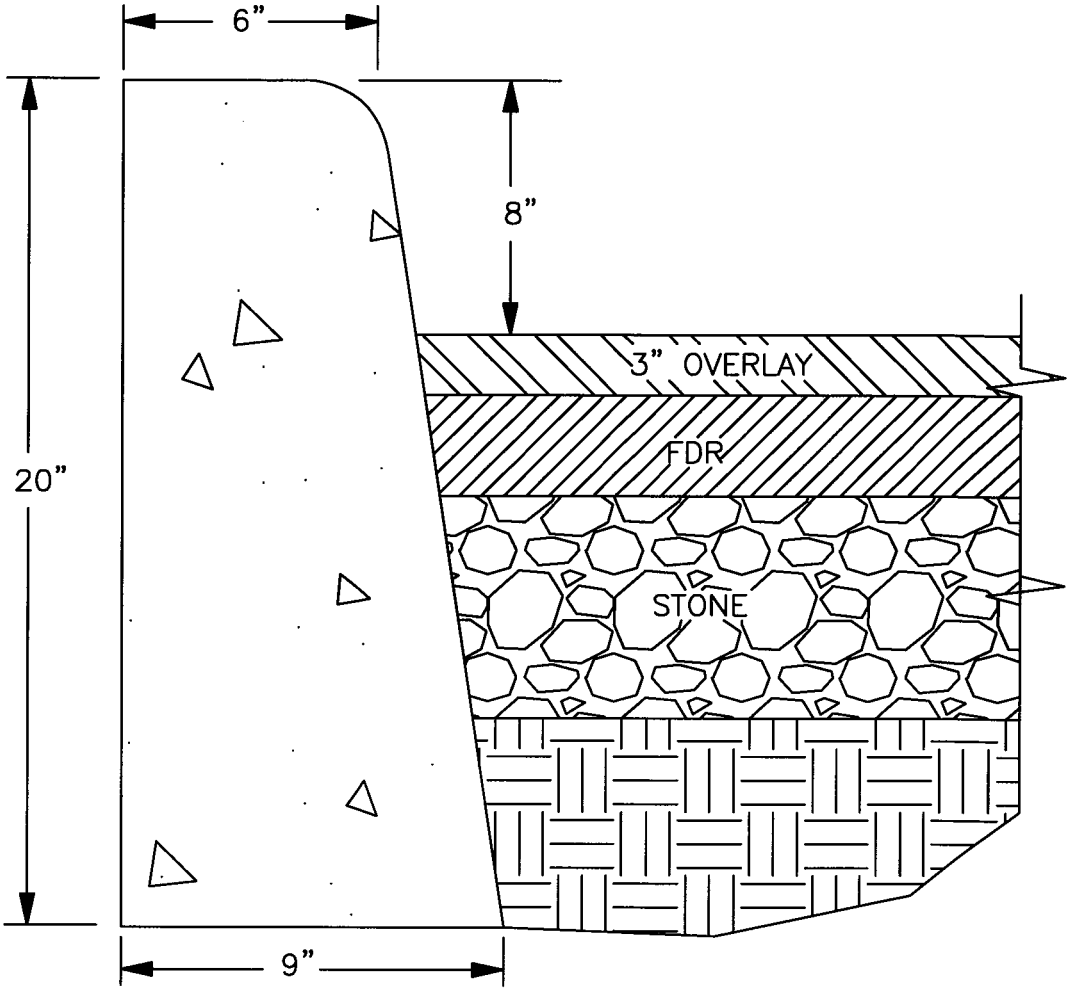


UNDERDRAIN DETAIL

WOODSIDE / WOODSIDE SOUTH

CITY OF COLUMBUS
OFFICE OF CITY ENGINEER
123 WASHINGTON ST.
COLUMBUS, INDIANA 47201

DRAWN BY:	CHECKED BY:	SCALE:	DATE:
R.D. Sims	S. RUCKER	NOT TO SCALE	October 2002



CONCRETE VERTICAL CURB

CITY OF COLUMBUS
OFFICE OF CITY ENGINEER
123 WASHINGTON ST.
COLUMBUS, INDIANA 47201

DRAWN BY:	CHECKED BY:	SCALE:	DATE:
S.PLUMMER	S. RUCKER	NONE	6/30/2000

Comprehensive Compliance Form (CCF) for #14-04 Woodside FDR Project

AFFIRMATIVE ACTION

Contractor, subcontractor, and bidder declare that they will not discriminate against any employee or applicant for employment in the performance of this contract with respect to hire, tenure, terms, conditions or privileges of employment, or any matter indirectly related to employment because of race, religion, color, sex, disability, national origin or ancestry. Contractor, subcontractor and bidder shall comply with this declaration, and understand that breach of this covenant may be considered a material breach of contract.

DISQUALIFICATION OF CONTRACTS DEALING WITH THE GOVERNMENT OF IRAN:

The undersigned does hereby certify that the person and/or business entity contracting herein has never and currently does not contract with the government of Iran for such business and services as defined in I.C. 5-22-16-.5-1 et seq. Furthermore, the undersigned will take the necessary steps to maintain compliance with this statutory provision throughout the term of this agreement. Failure to comply with this statutory section may result in termination of this agreement.

DRUG FREE WORKPLACE

Any and all contractors performing work for the City of Columbus shall maintain a drug free work place pursuant to applicable federal and state law regulations. By contracting with the City of Columbus, each contractor hereby certified and agrees that it will provide a drug free workplace and take all appropriate steps to insure that all applicable federal and state regulations concerning the implementation of such drug free workplace has occurred.

OSHA AND IOSHA REGULATIONS

It is the policy of the City of Columbus to be in compliance with all federal and state occupational safety and health regulations and/or standards. It is a requirement for any person, company, or corporation doing business with the City of Columbus to be in compliance with the appropriate OSHA and IOSHA regulations and/or standards. Any person, company, or corporation not in compliance shall hold the City of Columbus harmless from any and all injuries, illness, and death arising out of non-compliance with the OSHA and IOSHA regulations and/or standards and such non-compliance shall be considered in material breach of any contractual agreement with the City of Columbus. Contractor, subcontractor and bidder shall comply with OSHA and IOSHA regulations and understands that breach of this covenant may be considered a material breach of the contract.

EMPLOYMENT ELIGIBILITY VERIFICATION PURSUANT TO I.C. 22-5-1.7 et seq:

The undersigned hereby affirms under penalties of perjury that they do not knowingly employ or contract with an unauthorized alien.
Furthermore, the Contractor shall enroll in and verify (or has enrolled in and verified) the work eligibility status of all its newly hired employees through the E-Verify program as defined in I.C. 22-5-1.7-3. The Contractor is not required to participate should the E-Verify program cease to exist. Additionally, the Contractor is not required to participate if the Contractor is self-employed and does not employ any employees. The Contractor shall not knowingly employ or contract with an unauthorized alien. The Contractor shall not retain an employee or contract with a person that the Contractor subsequently learns is an unauthorized alien. The Contractor shall require its subcontractors, who perform work under this contract, to certify to the Contractor that the subcontractor does not knowingly employ or contract with an unauthorized alien and that the subcontractor has enrolled and is participating in the E-Verify program. The Contractor agrees to maintain this certification throughout the duration of the term of a contract with a subcontractor. The City may terminate this Agreement for breach of contract/default if the Contractor fails to cure a breach of this provision no later than thirty (30) days after being notified of such breach.

The undersigned hereby acknowledges, certifies and affirms the above provisions, and agrees that if awarded a contract by the City of Columbus for the above named project, said provisions will be attached to and incorporated into the final contract.

Company Name: _____

Company Address: _____

_____

By (Written Signature): _____

Printed Name: _____

Title: _____

Date: _____

STATE OF_____

COUNTY OF_____ SS:

Subscribed and sworn to before me this____day of_____, 20_____.

My commission expires:_____

Signed_____

Residing in_____
County, State of _____

SPECIFICATION No. 100

For

CITY OF COLUMBUS, INDIANA

A 1 DEFINITIONS

Wherever the words, "THE BOARD", are used in these specifications, it shall be understood as referring to the BOARD OF PUBLIC WORKS AND SAFETY of the City of Columbus, the representative in this contract of the City of Columbus. Wherever the word "ENGINEER" is used in these specifications, it shall be understood as referring to the City Civil Engineer of the City of Columbus. Wherever the word "CITY" is used in these specifications, it shall be understood as referring to the Civil City of Columbus, Indiana. Wherever the word "CONTRACTOR" is used in these specifications, it shall be understood as referring to the person, firm, or corporation, who shall enter into an agreement to execute and perform the work, or any part thereof, as herein specified and contemplated, or any other legal representative of said person, firm or corporation.

Wherever the letters "A.S.T.M." are used in these specifications, it shall be understood as referring to the American Society for Testing Materials. Wherever the letters: "A.A.S.H.T.O." are used in these specifications, it shall be understood as referring to the American Association of State Highway Transportation Officials.

When reference is made to a certain Designation Number of a specification or test as set out or given by the American Society of Testing Materials, the American Association of State Highway Transportation Officials, or any other generally accepted authority, it shall be understood to mean the current, up-to-date, standard specification or interm specifications for that particular process, material, or test as currently published by that group.

A 2 INTENTION OF PLANS, SPECIFICATIONS, AND CONTRACT

It is intended that all specifications, plans, drawings, profiles, and details, setting out, describing, detailing, and otherwise defining the size, shape, kind, quality, quantity, or performance of any materials, equipment, installation, or construction shall all be a part of the contract covering the project which said documents define; and all of said documents are intended to complement each other with each part making the whole more complete, consistent, and intelligible, in that order of importance.

A 3 INTERPRETATION OF THE PLANS, SPECIFICATIONS, AND CONTRACT

The Plans and Specifications are technical documents, expressed in engineering terminology and symbols, and shall be interpreted by the most usual engineering meaning. Where uncertainty or doubt exists as to the correct interpretation, intent, or meaning of the plans and/or specifications, the Engineer shall be requested to set out the proper meaning, intent, and/or interpretations; and his interpretation shall be final and binding in the administration of any contract of which any plans and/or specifications are a part. It being not practical to set out in absolute and complete detail each and every requirement for performing the work covered by the plans and specifications, in addition to those things specifically required, all things reasonably implied shall be as much a part of the work as if specifically set out. Any one having doubt as to the meaning, intent, or requirements of the plans or specifications shall request from the Engineer a written clarification. Any Bidder who submits a proposal on any work covered by plans and specifications shall familiarize himself with the plans, specifications, the site where the work is to be done, and all other things related to the work; and his failure to do so shall not be reason to release him from any obligation he does assume as a result of submitting a proposal or of contracting for any work. All plans and specifications shall be interpreted wherever possible to complement each other. Where complementary interpretation is not possible, the Engineer shall upon request of any party to the contract set out the interpretation which shall govern. Bidders may request interpretation from the Engineer at any time. No interpretation shall change or prejudice the language of the original document unless it be issued in written form as an addendum in the case of the specifications or a change order in the case of a contract.

A 4 DIMENSIONS, SCALES, ERROR, AND MISTAKES

The information shown on all drawings such as plans, profiles, elevations, details, and schematics is intended to be correct. Written dimensions shall always take precedence over scaled dimensions. Dimensions of new construction shall take precedence over dimensions of existing conditions. Information furnished in the contract documents on existing conditions at the construction site are furnished to assist the bidders in becoming familiar with the site. Each bidder shall inform himself of site condition before submitting a proposal and shall not thereafter complain of his lack of information. Errors on the drawings which, when corrected by the Engineer, change the size, length, or quantity of materials or equipment in the project shall be followed by a change order changing the contract amount as prescribed in Paragraph A 5 – CHANGES IN THE PLANS AND SPECIFICATIONS. Results of mathematical processes shall be secondary to the original data used in the process; and mistakes such as those incurred in transposition, addition, subtraction, multiplication and division shall be corrected

whenever found without changing the contract. Each bidder shall assure himself that every list, schedule, take-off, and the like is a correct representation and/or summary of the data given on the plans in the specifications.

A 5 CHANGES IN PLANS AND SPECIFICATIONS

The Engineer may change any detail, material, or method of construction which will not increase the cost nor decrease the quality or performance of the completed facility; and such change shall not be deemed a change in the contract. Changes in the Plans or Specifications or both may be ordered by the Board.

The Board may add to or reduce the quantity of work covered by the contract, change the materials, equipment, or methods of construction, or otherwise change the plans or specifications without vitiating contract so long as the contract price and completion date are adjusted as set out herein. In the administration of any contract of which plans or specifications are a part, the contract price shall be adjusted by one of the following methods:

(a) By applying unit prices supplied on the contractor's proposal against the changes in the contract quantities.

(b) By applying supplementary unit prices supplied on the contractor's proposal against the changes in the contract quantities.

(c) Where no applicable unit prices are available in the contract, then by an acceptable proposal from the contractor.

(d) As a last resort by paying all direct labor, material, and equipment cost plus twenty (20) percent to cover superintending above foreman level, all overhead, and other distributive charges. Equipment cost shall be deemed to be that determined by applying the latest schedule of the Rental Equipment Dealers Association against the hours of equipment use.

Whenever the Board does change the quantity of work, materials, or methods of construction, or equipment incorporated into the project, the Contractor shall at that time file a request for extension of time for completion if said change will cause a delay.

A 6 MATERIALS

All materials shall equal or exceed the quality specified or reasonably implied by the plans and specifications. The Contractor shall be prepared at all times to furnish a notarized statement from manufacturers that the materials furnished meet the applicable specifications. The Contractor shall upon request

furnish material samples for approval prior to use in the work; and after approval he shall not substitute other materials. Materials stored on the job or incorporated into the work which do not meet specified requirements shall be removed and replaced at the Contractor's expense upon order of the Engineer. Progress payments shall not be interpreted as acceptance of materials, equipment, or performance.

A 7 EQUIPMENT

All equipment shall equal or exceed the quality and performance specified or reasonably implied by the plans or specifications and shall have an appearance satisfactory to the Engineer. The Contractor shall submit manufacturer's performance data, detail drawings in plan and elevation, weights, foundation requirements, space requirements, power requirements, and related information and shall secure the Engineer's approval of said equipment prior to its purchase. The submission of the above requested information, its approval by the Engineer, the placing of orders therefore, and the securing of scheduled delivery dates shall be judged to be ten percent (10%) progress on equipment purchase and installation. No progress payments will be made on any project until this ten percent (10%) progress on equipment purchase and installation has been accomplished.

A 8 WORKMANSHIP AND APPEARANCE

In addition to the materials and equipment specified herein, all work shall be performed in such order and manner that said materials and equipment are combined and installed to accomplish the completed project as defined, described, and implied by the contract documents. Good workmanship and appearance are an integral part of the contract, and the Contractor shall employ skilled craftsmen in each craft who are capable of performing good work and shall provide superintendents who know what good workmanship is and require it of all their workmen.

A 9 INCOMPETENT, UNSKILLED, DISORDERLY PERSONNEL

The Contractor shall provide competent, skilled, and orderly personnel to perform the work. Any person employed who is found to be non-cooperative, insolent, drunk, disorderly, incompetent, or unskilled at the work he is performing shall be removed from the work immediately upon request of the Engineer and shall not be allowed to return to work on the project without the Engineer's approval.

A 10 COMPETENCE OF CONTRACTOR AND SUBCONTRACTORS

The Bidder shall be competent to perform with his own resources and personnel all of the work covered by the plans and specifications unless he states in his proposal that he intends to sub-let part of the work. Any bidder who so states

shall be required to submit prior to the award of a contract a list of the subcontractors he shall use on the work, what work each of said subcontractors shall perform, and he shall furnish upon request of the Engineer information adequate to establish the competency of said contractors. After proposing to perform all the work with his own resources and personnel, or after listing the subcontractors he shall use on the work and the work they shall perform, and after being awarded a contract on the basis of either one of these conditions, any change in either of these two conditions shall require the prior approval of the Board or the Engineer.

A 11 WORK AT THE CONTRACTOR'S RISK

During the term of the contract, including the guarantee and maintenance period, the Contractor and his surety shall be entirely responsible to the City and to the public for any loss or damage resulting from the construction of and lack of performance of the work covered by the contract whether the loss or damage be occasioned by acts of commission or omission, of agent or employee, or result from rain, flood, backwater, caving, settlement, nuisance, explosion, fire, theft, windstorm, or delay.

A 12 ORDER OF THE WORK

The Contractor may perform the work in such order, sequence, or schedule as he may deem necessary and best so long as said order, sequence, or schedule does not unnecessarily inconvenience the public, interfere with public safety, or impair or threaten to impair the quality, performance, or appearance of the completed work. Construction in a public street which results in the closing of more than one thousand (1000) feet of one lane of a street, or the closing of two or more consecutive street crossings, or the closing of both lanes of traffic shall not be permitted unless approved in writing by the Engineer. Said request must allow adequate time to present said request to the Board. All streets shall be kept closed for only the minimum time required to perform the work.

A 13 SUSPENSION OF WORK

The Board may suspend the work, either in whole or in part, for periods of seven days or less when in its opinion the necessity, convenience, or welfare of the public requires it. The Engineer may recommend to the Contractor and the City that the work be suspended when, in his opinion, weather or site conditions are so unfavorable that satisfactory performance is not likely. The City shall consider the Engineer's recommendation as prima facie evidence that the public welfare requires suspension of the work. If, for any reason other than non-compliance with plans and specifications, the Board orders the work suspended, the time of completion shall be extended by the amount of time the suspension is in effect.

A 14 CONSTRUCTION DURING THE COLD SEASON

During the season of the year when below freezing temperatures may reasonably be expected, construction work which can be damaged by frost, snow, or ice shall not be done except upon written permission by the Engineer. A contractor who wishes to continue construction during this season shall submit a written request to do so and shall set out the specific methods he proposes to use to prevent any cold weather damage. In addition to preventing damage to the work during this season, the Contractor shall take all precaution to prevent unnecessary inconvenience to the public or undue hardship on any person.

A 15 PROTECTION AND RESTORATION OF REAL ESTATE IMPROVEMENTS IN PUBLIC STREETS, ALLEYS, AND EASEMENTS

The Contractor shall take positive action to protect from unnecessary damage all curbs, walks, lawns, trees, bushes, shrubs, and property markers lying within or adjacent to public streets, alleys, and easements. All damage shall be corrected so that said improvements are returned substantially to the same or better condition existing prior to the work having been performed at no cost to the City unless specifically set out in the proposal.

A 16 MAINTENANCE OF ACCESS TO PRIVATE PROPERTY

No private property shall be isolated to the extent that no safe pedestrian access is available to the tenant thereof. In addition, vehicular access shall be maintained at all possible times. The storage of materials shall be done in such manner and at such places that drives, walks, gutters, fire hydrants, alleys, or streets are not blocked.

A 17 JOINING TO OR CONNECTING WITH EXISTING FACILITIES

The Contractor shall include in his bid the total cost for joining and connecting all new construction with existing facilities which said new construction serves, is served by, is a functional part of, or to which it is adjoining. The joining, jointing, and connecting shall be done in a substantial manner and shall have a good appearance, the cost of which will be incidental to the contract.

A 18 COLLATERAL WORK

The Board expressly reserves the right to perform work collaterally with work performed by the Contractor under these specifications either with its own forces or by separate contract and may choose to suspend the work of either Contractor so that the collateral work may be performed. No Contractor shall be required to guarantee the work of another contractor, but each contractor shall be

responsible for any damage he may do to any existing facilities. Each contractor shall give written notice to the Engineer setting out any damages and any additional cost or time delay he does incur on his work because of said collateral work having been performed. Said notice shall be filed with the engineer not later than ten days after said damages and/or cost or time addition has been incurred. Damages shall be collected by one contractor from the other party doing the collateral work. Additional costs or time will be covered by change order to the contract upon presentation of proof thereof to the Board.

A 19 NOTICE TO UTILITIES

The Contractor shall give all gas, electric, telephone, steam, water, and sewer utility companies three working days notice prior to commencing work in any public street, alley, right-of-way, or easement. Failure to give such notice shall be prima facie evidence of neglect of duty and shall not be considered a just cause for extension of time of completion nor increased compensation for loss or damage resulting therefrom. Delays due to utility work are not just cause for extension of the contract deadline.

A 20 PROTECTION OF EXISTING TRACKS, PIPES, AND WIRES

The Contractor shall take notice of the location of existing tracks, pipes, wires, and the like; and he shall take the necessary precaution to prevent their being damaged. In the case that existing tracks, pipes, wires, and the like are so located that the work contracted for can not be performed, the Contractor shall so notify the Engineer and request instruction before proceeding. Carelessness in handling or wanton disregard for such facilities will not be tolerated. Damage to such facilities caused by the Contractor will be repaired at his own expense.

A 21 OBSTRUCTIONS

Unless specifically set out otherwise in the Special Conditions or on the drawings, the Contractor shall remove any obstruction he encounters without special or additional payment.

A 22 PERMITS AND FEES

The Contractor shall obtain all permits and pay all fees required for the performance of work covered by his contract. In the case of State Highway Permits to perform work in State Highway Right-of-way, the City will allow the Contractor to make the application in the name of the City, provided said application is prepared by the Contractor, is submitted to the Board for approval prior to its submission to the State, and provided that the Contractor agrees to be entirely responsible for satisfying the requirements of the State in connection with the work performed within the State Right-of-way and provided that the Contractor pays the inspection fee to the State.

A 23 LAWS AND ORDINANCES

The Contractor shall familiarize himself with all City, County, State, and Federal laws, ordinances, and regulations affecting the performance of the work and shall conduct himself in accordance with said laws.

A 24 MINIMUM WAGE SCALE

The Contractor shall, in particular, familiarize himself with Acts of the Indiana General Assembly, Chapter 319, 1935, and those amendatory thereto, prescribing wage scales to be set, posted, and complied with on applicable projects financed by political subdivision of said State.

A 25 WORKER'S COMPENSATION INSURANCE

The Contractor shall carry Worker's Compensation Insurance as required by the Acts of the Indiana General Assembly and shall furnish upon request a certificate of compliance therewith from the Indiana State Industrial Board.

A 26 COMPLETION AFFIDAVIT

The Contractor shall furnish, upon completion of the work, an affidavit stating that the contract has been completed in accordance with the plans and specifications and that all bills for labor, materials, and equipment have been paid.

A 27 CONTRACTORS "AS BUILT" DRAWINGS

The Contractor shall mark upon a set of drawings for the project all variations from said drawings and shall furnish same to the Engineer with the completion certificate. The Contractor shall take special care to insure that a record of the concealed variations, such as those underground or enclosed, is accurately made. This set of marked drawings shall be referred to as the Contractor's "As Built" drawings.

A 28 PATENT RIGHTS, COPYRIGHTS, AND INDEMNITY

The Contractor shall keep the City free and harmless from payment of any and all damages, cost, expenses, royalties, patent fees, attorney fees, or any sums of money whatsoever, by reason of any action, claim, demand, or proceedings arising out of any infringement or alleged infringement of patent or copy rights, or the use of patented devices, articles, systems, or arrangements; and he shall save harmless the City from all claims or actions of any kind or description brought against the City for or on account of any injuries or damages received or sustained by any person, firm, or corporation engaged in construction, or because of any neglect in

guarding the work, or because of the use of improper materials or methods, or because of an act of commission or omission by the Contractor of his agents or employees.

A 29 PUBLIC LIABILITY AND PROPERTY DAMAGE

The Contractor shall carry public liability and property damage insurance sufficient to protect the City from any and all liability resulting from performing the work covered by the contract with said City. The insurance coverage shall be not less than three hundred thousand dollars ($300,000.00) for any one person nor less than five million dollars ($5,000,000.00) for any one accident.

A 30 FACILITIES, PERSONNEL, AND PROGRESS

The Contractor shall provide adequate facilities, personnel, and equipment to carry on the work with dispatch. If, at any time, the work is not progressing to the satisfaction of the Engineer, said Engineer may require the Contractor to file for his approval a schedule setting up a logical and orderly sequence for performing and completing the work. Upon approval of said schedule by the Engineer, the Contractor shall then mobilize sufficient manpower, materials, and equipment to meet said schedule. Failure to submit said schedule for approval or failure to progress in accordance with an approved schedule shall be deemed to be failure to perform in accordance with the terms of the contract.

The Contractor shall provide sanitary toilet facilities for the use of the personnel on the job and shall keep said facilities in such condition that they do not constitute a public nuisance.

The Contractor shall provide a minimum field office, adequate to house and protect from the weather a set of plans for the project and a table space on which they may be spread out flat. Where the Special Conditions specify, a field office, a warm, dry office, at least eight (8') feet wide, twelve (12') feet long, eight (8') feet high, complete with a three (3) foot by five (5) foot table, telephone, chair, and stool shall be provided at the site for use by the Engineer during the progress of the work.

The Contractor shall provide barricades, warning signs, lights, flares, and detour signs, and shall properly place any one or a combination thereof to warn pedestrians, motorists, and aviators, where applicable, of the obstructions, excavations, explosions, and falling objects which may endanger them. All barricades shall be clearly labeled with the Contractor's name. All lights and flares shall either burn continuously or shall flash on and off with the "off" cycle being no longer than the "on" cycle. All warning lights shall be of such intensity that they shall be easily noticeable to a person of normal vision for a distance of five hundred (500) feet.

A 31 DUTIES OF THE ENGINEER

The Engineer shall perform the following duties:

(a) He shall represent the Board in the administration of any contract for work to be performed under these specifications.

(b) He shall supervise all surveyors, engineers, and inspectors, hired by Board to provide technical assistance on any project covered by these specifications.

(c) He shall review, upon presentation by the Contractor, all detailed drawings, specifications, performance data, and other information related to the acquisition and installation of materials and equipment on all work covered by these specifications; and he shall render a statement of approval or disapproval of such materials and equipment upon request of the Contractor. He may, on his own initiative, render to the Board and to the Contractor a statement of disapproval of any material or equipment being incorporated or proposed to be incorporated in said work as well as any construction method or work, which, in his opinion, is resulting or will result in completed work which does not or will not comply with the plans and specifications. The Engineer's statement of disapproval shall set out his reasons for such disapproval.

(d) He shall, upon presentation by the Contractor, review progress estimate and shall, within ten days, render a statement of approval or disapproval. The Engineer's statement of disapproval shall set out his reasons for such disapproval.

(e) He shall recommend to the Board that payments be made to the Contractor when, in his opinion, such payments are due and payable.

(f) He shall recommend to the Board final acceptance of and payment for the completed work when the terms of the contract have been fulfilled.

(g) He shall prepare all assessment rolls required by law.

A 32 AUTHORITY OF THE ENGINEER

The Engineer may recommend to the Board and the Contractor for their approval changes to the contract; but his authority to make decisions is limited at all times to the provisions of the plans, specifications, and the contract in effect at the time of the decision.

A 33 CONTRACTOR'S RESPONSIBILITY ON PERFORMANCE

It shall be the Contractor's responsibility to perform all work and to furnish all things required of him by the contract and to notify the Board in writing, when circumstances beyond his control prevent him from performing and/or progressing with the work in accordance with the terms of said contract.

A 34 RIGHT-OF-WAYS AND EASEMENTS

It shall be the Board's responsibility to provide the right-of-ways and easements shown on the plans, and it shall be the contractor's responsibility to provide all other easements required by him for the performance of the work.

A 35a COMPULSORY GUARANTEE

The work shall be done in such a substantial manner that no repairs will be required for a period of not less than one (1) year. In the case of Barrett Law Projects, the compulsory guarantee period shall date from the time of approval of the final assessment roll by the Board, provided that if the termination of the guarantee period shall fall within the months of December, January, February, or March, then in that case the said months of December, January, February, or March shall not be included in the computation of the said guarantee period, but such period shall be held and understood to terminate on the 15th day of April next thereafter, unless otherwise permitted in writing by the Board. The said Contractor shall keep his work in good repair during the time of the guarantee period and shall make all repairs at such time as directed by the Board or the Engineer. The Contractor warrants his workmanship and all materials used in the work, and he agrees that during the guarantee period specified he will at his own expense make all repairs which may become necessary by reason of improper workmanship or defective materials. Such maintenance, however, shall not include any damage to the pavement or to the foundation thereof or to any of the other items or work embraced by this contract resulting from any forces or circumstances beyond the control of the Contractor, nor is it intended that the Contractor shall become a guarantor of the plans and specifications furnished by the City. In case such repairs become necessary, the City shall give written notice to the Contractor to make the same and in case of failure of the Contractor to commence such repairs either by its own employees or by independent contract, and may thereupon recover from the Contractor and his sureties the reasonable cost of the repairs made, together with the cost of the supervision and inspection thereof. The City shall have sixty (60) days after the expiration of said guarantee period in which to notify the Contractor of any such repairs necessary on the date of expiration. Whenever the repairs necessary to be made at the expiration of the guarantee period shall amount to more than fifty (50) percent of the surface of any one block, the entire pavement of that block shall be taken up and relaid in accordance with the original specifications. In Asphalt, Brick, Asphaltic Concrete, Reinforced Concrete, Monolithic Concrete, or

any other defects resulting from the decomposition of the wearing surface or foundation, must be repaired. The pavement, at the expiration of the guarantee period, shall be in good condition and present surface so true and even that it will in no way be an obstruction to travel, and shall have drainage so perfect that water may collect in no place to a depth of more than one quarter (1/4) of an inch. In case of cement sidewalks and cement block in which the top coating is not firmly united with the concrete, and any blocks in which cracks show or other defects, due either to defective materials or bad workmanship, shall be removed and replaced by entirely new work at any time during the guarantee period, if so ordered by the Board. The determination of the necessity for repairs shall rest entirely with the Board, whose decision upon the matter shall be final and obligatory upon the Contractor. The guarantee herein stipulated shall extend to the whole body of the improvement and all its appurtenances.

A 35b OPTIONAL GUARANTEE

The City shall have the right to compel all bidders to submit as a part of the proposal bid prices to cover the extension of the guarantee described in A 35a for successive years of coverage and shall have the right to accept or reject such bids as a part of the contract at any time prior to the approval of the assessment roll.

A 36 DEPOSIT OF IMPROVEMENT BOND

As an additional guarantee that the Contractor will properly repair and maintain the improvement specified for the guarantee period, as above provided, the Contractor shall be required to deposit with the City Clerk-Treasurer improvement bonds of the City of Columbus, United States Government Bonds, Certificates of Indebtedness to the City of Columbus, cash, or surety bonds with the corporate surety thereon satisfactory to the Board of Public Works in an amount equal to twenty five (25) percent of the cost of said improvement for the purpose of insuring that the provisions of the guarantee will be fulfilled, and also for the purpose of indemnifying the City for any expenditures on account of damages or injuries to any person, firm or corporation during the progress of the work in the guarantee period. The face value of such bonds shall, at not time during the guarantee period, be decreased; but the Contractor will be permitted to receive and receipt, from time to time, for all maturing interest coupons.

A 37 CONSTRUCTION STAKE-OUT

The work to be done under this contract will be staked-out by the Engineer. The Contractor shall give the Engineer at least thirty-six hours in writing before requiring stakes to be set on any portion of the work, and he shall clearly state in such notice the exact locality or localities where such stakes are needed for immediate use. All stakes are intended to be correctly set and marked to define the line and grade of all the construction work so that the finished job is that intended by and shown on the plans and is as called for in the specifications. Any stake

which calls for line or grade contrary to that shown on the plans shall be considered by the Contractor to be in error. The Contractor must satisfy himself before commencing work as to the meaning and correctness of all stakes and marks, and no claim will be entertained by the City for or on account of any alleged inaccuracies or for alterations subsequently rendered necessary on account of such alleged inaccuracies, unless the Contractor shall have notified the Engineer thereof in writing and shall have been ordered thereafter to proceed in accordance with said stakes.

The Contractor shall be held responsible for the preservation of all stakes and marks in their proper positions. Any stakes, marks, or monuments, destroyed, lost or disturbed as a result of the Contractor's failure to protect said stakes, marks, or monuments shall be replaced by the Engineer at the Contractor's expense. As the stakes and marks will not in all cases represent all the grades, lines, angles, and changes of surface in the finished work, the Contractor must take care to see that they are taken in connection with the intent of the plans, details, specifications, and the Engineer's direction.

A 38 CONTRACTOR'S ASSISTANCE

As a part of his contract with the City, the Contractor shall furnish the Engineer, and/or the City with any reasonable assistance which either one may require at any time to help in driving stakes, laying out the work, culling and inspecting materials, inspecting construction, or testing the completed job. No compensation in addition to the contract price will be paid the Contractor for this assisting.

A 39 INSPECTORS AND INSPECTION

The City may appoint such inspectors as it may deem necessary who shall be paid by the City and who may be on the job site at any time and who shall be under the supervision of and who shall report to the Engineer. In the absence of the Engineer said inspectors shall represent the Engineer. Any work performed contrary to the instructions by the Inspectors in the absence of the Engineer shall not be accepted until such work is specifically approved by the Engineer. Inspectors shall report to the Engineer on all occasions when he observes work being performed as well as materials and equipment being furnished, any part of which does not comply with the plans and specifications. All workmanship, materials, equipment, or completed work shall be subject at all times to inspection and rejection by the Engineer, when such things do not comply with the requirements of said plans and specifications.

A 40 WORK NOT INSPECTED

It shall be the duty and responsibility of the Contractor to see that all materials used and that all work done is in accordance with the plans and

specifications. Inspectors employed by the City and placed on the job shall not relieve the Contractor of any of his duties and responsibilities. Work performed and materials furnished shall be judged at all times on their own merits whether inspected or not inspected.

A 41 DEBRIS AND CLEAN-UP

On the completion of the work, the Contractor must remove from the premises all surplus materials and debris of any kind and description. He must also restore to their former conditions all sidewalks, crosswalks, streets, parks, pavement, curbs, fences, and other public and private property which may have been disturbed or damaged by reason of this work. Upon the temporary discontinuation of the work, all materials or debris are to be piled up snugly and safely so as not to impede travel on the sidewalks, roadways, or driveways, or to interfere with the use of fire hydrants or of drainage gutters. The Contractor must complete the work as it progresses and in case of sewers shall contract all house connections, catch basins, manholes, inlets, and other appurtenances, and restore the street to a passable condition as soon as one block of the mainline of the sewer has been completed.

A 42 SALVAGED MATERIALS

Material which must be removed during the course of construction shall become the property of the Contractor unless specifically set out to the contrary in Special Conditions and Specifications or on the drawings.

A 43 TRAFFIC SIGNS

The Contractor shall not remove, conceal, or obstruct the view of traffic signs, warning signals, or control lights without making provisions for the safe control of traffic. The Chief of Police shall be notified of the necessity and intent of removing any traffic signs, signals, or lights twenty four (24) hours in advance of any such action and shall determine the method of controlling traffic during the absence of said signs. No project shall be complete until all street names, traffic, and informative signs have been replaced.

A 44 ADDRESS OF CONTRACTOR

Each contractor, firm or corporation having a contract with the City must maintain an office or agent in the State of Indiana during the period. The location of this office or the post office address of the agent must be filed with the City, and notice sent to such office or agent at the address on file in the office of the City Engineer will be considered full and sufficient notice under these specifications.

A 45 PERFORMANCE BOND

Within five (5) days after the successful bidder shall have been notified of the acceptance of his bid, he shall file with the City an approved performance bond in an amount of not less than one hundred (100) percent of the contract price, but in no case shall a bond be offered for less than five hundred ($500.00) dollars, conditioned to guarantee the full and complete performance of his work according to the terms of his contract and that he will comply with and carry out all the terms and provisions of said contract, said bond to be in full force and effect up to and including the final acceptance of the work or approval of the final assessment roll, after which it will cease to be operating, subject to the following conditions, to wit:

(a) Before the Contractor shall be released from his bond, he shall file with the City bonds or cash as provided by Section A 36 of this specification.

(b) The Bond, in all cases, shall continue in full force and effect for the purpose of fully indemnifying and reimbursing the City for any loss or expenditure resulting from any and all injuries to persons or property growing out of any fault herein occurring on or in connection with or about the work or premises covered by this contract either prior to or subsequent to the final acceptance of said work by the City.

(c) The Contractor shall have paid all claims for labor, equipment, materials, and all other things required by the Contract and shall have so sworn in the affidavit of completion.

A 46 MEASUREMENTS

No extra or customary measurements of any kind will be allowed in measuring the work under these specifications; only the actual length, area, solid contents, weight, or number shall be considered.

A 47 TIME OF BEGINNING AND COMPLETION

The time fixed in the contract for the completion of the work shall be and is an essential element and consideration. Failure to complete the contract within the specified time will result in the Board assessing the Contractor liquidated damages, and subtracting said liquidated damages from money due the Contractor. Assessment of liquidated damages does not relieve the Contractor of his obligation to complete the project. In the event said Contractor or his sureties fail or neglect to commence the work within the stipulated days from the award of the contract (unless the Contractor shall be given an additional period of time to commence the work) or fail to prosecute such work with such vigor as will complete the same within the time fixed in the contract, the City may declare said contract null and

void and may adjudge the same to have been abandoned and forfeited and may re-let or require said sureties to complete the same, as said City shall elect; and said Contractor and his sureties shall be liable for all damages that may occur by said failure to perform said work according to the contract and shall be entitled to receive nothing from the City or the property owners along said improvement for work already performed or materials used; and such materials shall be retained by and belong to the City.

SPECIAL PROVISIONS FOR FDR WORK

1. Contractor shall be prepared to enter into an agreement immediately upon award of contract. Completion of contract shall be June 30, 2014. Failure to complete on time shall result in liquidated damages in the amount indicated in the current Schedule INDOT Specification 108.09.

2. The City will provide notification to all utility companies involved.

   Where conflicts occur, the Contractor can coordinate his work directly with the following utility offices:

Columbus City Utilities	(Sanitary Sewer, Water)	372-8861
Duke Energy		376-9774
REMC		372 2546
Comcast Cable		800-266-2278
Vectren Gas Company		800-227-1376
AT & T		800-222-3000
City Engineer's Office	(Storm Sewers)	376-2540

3. The scope of the work shall be Full Depth Reclamation, Overlay, Underdrain installation, pipe replacement and re grading of Roadside swales as shown in the advertisement for bids. All work will be performed at the detailed and specific direction of the Engineer or his assigns.

4. Material quantities shown on the Bid Form are estimates. Tonnages have been estimated on the basis of the thickness shown on the Bid Sheet Form, which is the average anticipated overlay. However, due to the required crown and elevation corrections, the actual thickness and final tonnages will vary from the estimate. Final payment will be based on the unit price bid for the actual amount of material installed. Weigh tickets showing the net weight of each load of material delivered to the job site shall be supplied to the Engineer for his use in computing final quantities. The tickets shall originate at the asphalt plant and show information as set out in Section 109.01 (b) of the current INDOT Standard Specifications,.

5. Traffic control including signs, lights, flag person, etc., shall be the responsibility of the contractor. Refer to item 30, paragraph 4 of General Conditions, Specification No. 100. **The contractor shall install temporary pavement markings as needed to maintain the safe flow of traffic.** The cost of the temporary markings shall be included in the cost per ton of the asphalt.

6. Contractor shall supply all required labor, equipment and materials necessary to complete the work. City will supply street sweeper and "No Parking" signs as necessary. Contractor will sweep and clean all FDR streets prior to being overlaid.

7. Bidder's price per ton in place for HMA mix shall reflect costs for contractor to furnish, transport, and place mix.

8. Tack coat, as set out in Section 406 of the current INDOT Standard Specifications, tack shall be uniformly applied at a rate of 0.05 gallon per square yard. The cost of the tack coat shall be included in the cost per ton of the asphalt.

9. All equipment necessary for the satisfactory completion of the work shall be listed with Part II of Form 96. Prior to starting work, the successful bidder shall file with the City Clerk-Treasurer a certificate of insurance showing his compliance with the Worker's Compensation Acts of Indiana and Public Liability and Property Damage coverage.

10. Each bidder must indicate in their bid the location of all asphalt plants that will be available to the City of Columbus for the furnishing of materials. Each plant must be approved by the Division of Material and Tests, Indiana Department of Highways.

11. All bidders on asphalt pavement furnished and/or applied, shall attach to their bid a copy of verified certificate of prequalification with the Indiana Department of Transportation.

12. All labor, equipment, materials and placement will conform to current Indiana Department of Transportation Standard Specifications. Surface shall be HMA Type 9.5mm unless otherwise specified.

    The Engineer reserves the right to change and/or modify any mix design, based on an equitable adjustment, if required of the contract price.

    All aggregate shall be sufficiently dried so no foaming, flushing, or slumping occurs in the mix.

    Flushing or blending of asphalt on the project will not be permitted. No asphalt shall be used while foaming.

    The Contractor shall use a three dump method for loading trucks to minimize segregation.

    Courses shall be allowed to cure before being subjected to traffic or before a subsequent course is placed thereon. The time of curing shall be as directed.

    At locations where it is impracticable to use mechanical methods, acceptable hand methods may be used for placing and spreading.

    Contact surfaces of curbing, gutters, manholes and other structures shall be coated with a thin uniform coating of tack material prior to bituminous mixture being placed against them.

    Where the existing pavement surface is irregular, it shall be brought to uniform cross section by application of bituminous patching or a full leveling course as directed. In all cases tack material shall be used.

13. Unless otherwise specified herein, applicable portions of the "Indiana Department of Transportation Standard Specifications, 2008" shall apply to this contract as if they were reprinted herein. Attention is called to the following particular sections.

Section No.	104.04	Maintenance of Traffic
	107	Legal Relations and Responsibility to Public
	108.09	Failure to Complete on Time
	109	Measurement and Payment
	306	Milling
	402	Hot Mix Asphalt, HMA, Pavement
	406	Tack Coat

14. The award of this contract will be based upon the total base bid. **A 10% retainage will be applied to all claims**. When the project is complete and accepted Contractor will be required to post a maintenance bond for (1) One year for 25% of project cost, at that time the contractor may invoice for the retainage.

15. The Contractor shall place pavement in such widths that new joints shall not be located within 2' of existing joints. Every effort should be made to minimize the number of longitudinal joints.

16. Each bidder shall make special note of section A15 of Specification 100. The Contractor shall take precautions to protect overhanging tree limbs. The Contractor shall be liable for any tree trimming which is necessary, at no additional cost to the City. If any breakage of tree limbs occurs, the Contractor shall have the broken limbs trimmed or cut by a qualified tree service on the same day.

17. Manholes and water valves must be adjusted to grade on each street within 7 (seven) calendar days of the overlay of that street. Thermoplastic pavement markings (if awarded) on each street shall be completed within 7 (seven) calendar days of the overlay of that street.

18. Concrete

In general, construction shall comply with the applicable portions of Section 604 of Indiana Department of Highways Standard Specifications with the following exceptions:

All "Portland Cement Concrete" shall be Class "A" as defined in INDOT Standard.

Expansion material shall be placed on each side of existing castings.

An acrylic based liquid membrane forming curing compound meeting requirements of ASTM C-1315 (Type I, Class A) shall be applied to all new concrete installed in the right of way. Curing compound shall be spray applied at a rate of 100 square feet per gallon. Curing compound may be sprayed on unless weather conditions dictate, if wind is present compound shall be rolled on, and in all cases applied on the same day as the new concrete is placed

19. Underdrains

Install 6 inch perforated drainage with sock tile 24” deep with #8’s and 14” wide; Underdrains will be day lighted at existing drainage pipe. Extend underdrains 1’ past the existing street for tying into future underdrain installation; provide end caps at each location. The cost of saw cutting, tack, asphalt, patching and stone shall be included in the unit cost of the underdrains.

20. Manholes and water Valves

Each bidder shall adjusting water valves castings to grade, the City Utilities will furnish water valves rings. Included in the cost of the FDR the Contractor’s price shall reflect the cost of raising water valve to correct elevation.

The work shall include adjusting all sewer, storm sewer, water castings, and traffic signal detector housings to the new pavement grade. Said adjustments shall be made within 7 calendar days prior to or following the overlay of a street. All materials and labor necessary to adjust the castings to grade shall be included in the unit price.

Manholes shall be raised with steel shims. Manholes may also be raised with concrete riser rings, providing that the difference in elevation is greater than 2”.

If riser rings are to be used, the City Engineer reserves the right to approve the rings.

21. Striping

Each bidder shall include a bid for the installation of reflective permanent pavement markings. The installation and materials shall conform to the current INDOT Standard Specifications and the Manual on Uniform Traffic Control Devices. The pavement markings on each street shall be installed within 7 (seven) calendar days of the completion of the overlay of that street.

All markings on the streets may be preformed or hot applied thermoplastic.

The contractor shall be responsible for the layout of the markings to match the existing markings unless directed otherwise by the City Engineer. The layout shall be approved prior to the installation of the markings. The City shall paint any parking stall markings and bicycle lane markings.

22. Pipe Relining

This specification encompasses the requirements necessary for the purchase and installation of solid-wall, high-density, polyethylene (HDPE) pipe liners (PPL) for the application of lining existing round culvert pipes 12”-78”and existing arched culvert pipes 24”–72”. Pipe liners furnished to this specification shall meet or exceed all of the following requirements.

Bidders are cautioned to read the specifications carefully, as there may be special requirements not commonly offered by the pipe liner manufacturer.

REQUIREMENTS:

The liner pipe shall be made of high-density polyethylene resin in accordance with the requirements of ASTM D-3350-02. The Cell Classification will be 345464C, and shall have the Plastic Pipe Institute designation of PE 3408.

Pipe liner must have a Dimension Ratio (DR) of 32.5 wall thickness. The installed pipe shall have a smooth non-corrugated interior surface.

The diameter dimensions shall be capable of maintaining a minimum flow rate equivalent to 100% of the original in –place culvert.

The Pipe Liner shall be capable of being joined into a continuous length by an interlocking method which will allow for pushing or pulling pipe into position. The joints shall neither increase nor decrease the area of the outside diameter of the liner pipe. Joints must be water-tight with gaskets that are capable of handling pressures in excess of 25 feet of head per ASTM D-3212. Pipe Liner supplied shall be round or ovalled/strutted InnerFlow™ Pipe Systems, or equivalent. Each Pipe Liner section must have a male and a female end.

The supplier shall furnish a manufacturer’s certification stating that the material used in the pipe meets the requirements of ASTM D 3350-002 with a Cell Classification of PE 345464C with the physical properties indicated above. The supplier shall certify the dimensions meet the requirements of ASTM F 714 and AASHTO M326-08.

Before inserting the liner pipe, the existing pipe must be cleaned if needed. All debris or other materials must be removed from the host pipe.

After the liner is in place, the area between the original pipe and the liner shall be completely filled 100% with cellular grout in such a manner as to obtain a substantially uniform space between the liner and the original pipe, on the top, bottom and sides.

The lightweight grout shall be made using a foam process. The generating equipment shall have the calibration checked daily by the foam manufacturers certified installer to produce a precise and predictable volume of foam. The foam concentrate shall be certified by the manufacturer to have specific liquid/foam expansion ratio at a constant dilution ratio with water.

The specific job mix shall be submitted to the Engineer by either the foam concentrate supplier or the certified or licensed grouting contractor for approval prior to use on the contract. The mix shall have a minimum 28 day compressive strength of 150 psi. Test results must be submitted to city for approval and payment.

The foam concentrate must be added to the cement/grout mix on-site, and mixed thoroughly for a uniform consistency, immediately before being pumped into the annular space.

The price paid for pipe liners shall be by the lineal foot and shall include all work performed on existing culverts, i.e.: cleaning out debris, jetting out if needed, removing sharp edges, installing blocking (skid systems), grout tubes, filling annular space 100% with grout, removal of brush and or small trees necessary to accommodate the new pipe liners and clean up after installation.

SPECIAL PROVISION
FOR
FULL DEPTH RECLAMATION (FDR) WITH ASPHALT EMULSION

Revised 2/13

A. Description.

This work shall consist of the asphalt emulsion full depth reclamation of the existing materials of a road with a reclaimer to obtain the plan width and depth(s) and conforming to the proposed plan grade and profile. Asphalt emulsion will be added to the blend of materials; water will be added as needed. The materials will be spread and compacted, resulting in a finished stabilized base in accordance with the plans and these specifications. The work shall generally conform to the Standard Specifications for Construction, except as modified herein.

B. Materials.

1. **Asphalt Emulsion:** The type of asphalt emulsion to be used shall be determined by the mixture design in order to meet the requirements in Table 1. A representative from the asphalt emulsion supplier may be on the job site at the beginning of the emulsion injection process to monitor the characteristics and performance of the asphalt emulsion. The asphalt emulsion supplier representative shall be available throughout the duration of the project to provide technical support to the contractor and the project owner. The Supplier shall not be required or expected to perform QC/QA testing. The asphalt emulsion supplier representative has the right to make adjustments to the asphalt emulsion formulation and job mix formula during this project, as required, to provide for changing conditions in material, weather or any other unforeseen condition.

2. **Crushed Material:** The crushed material reclaimed to the required depth prior to the addition of the asphalt emulsion. This crushed material shall meet the gradation requirements in Table 2. The compacted product shall be placed at a thickness of a minimum of two times the nominal size of crushed millings or 2.5 inches, whichever is greater, and to a maximum of 10 inches.

3. **Additional Aggregate:** The type of additional aggregate, if any will be determined by the mix design.

4. **Fog Seal Emulsion:** If required, this material shall be an approved fog seal emulsion.

5. **Water:** Shall be clear and free of deleterious materials such as: acid, oil, alkali, organic material, salt, sugar or other harmful materials.

6. **Other Additives:** If necessary, additives may be used to meet the requirements in Table 1. In the case that an additive is used, the type and allowable usage percentage must be described in the submitted mix design.

C. Mix Design.

A mix design is included in these bid documents. The mix design laboratory must possess a current and valid AASHTO R18 accreditation in both aggregates and HMA, at a minimum. The mix design was based on using the materials that will be recycled, which were obtained directly from the project site. This mix design meets the criteria of Table 1.

Table 1

For 152mm diameter specimens using Gyratory Compactor	
Properties	**Criteria**
SGC, 1.25˚ angle, 600 kPa	30 Gyrations
Short Term Strength (STS) ASTM 1350, Part 13 175g/25 mm of width	175 min
ITS of Control Samples, AASHTO T283, psi	40 min
ITS of conditioned samples, AASHTO T283, psi	25 min

D. Equipment.

1. **Pulverizer:** A self-propelled pulverizer that is capable of pulverizing the road to the depth shown on the plans.

2. **Reclaimer/Stabilizer:** A self-propelled reclaimer that is capable of fully reclaiming the road to the depth shown on the plans, incorporating the asphalt emulsion and water, and mix the material to produce a homogenous material. The recommended minimum power of the reclaimer shall be 400 hp. The machine shall be capable of reclaiming not less than 6.5 feet wide and up to 12 inches deep in each pass. The reclaimer shall have a system that includes a full width spray bar with nozzles for adding asphalt emulsion and a positive displacement pump interlocked to reclaimer speed so that the amount of emulsion added is automatically adjusted with changes in the ground speed. The additive system shall be capable of incorporating up to 7 gallons per square yard of emulsion. Individual nozzles on the spray bar shall be capable of being turned off as necessary to minimize emulsion overlap on subsequent passes. The use of a heating device to soften the pavement will not be permitted.

3. **Grader.** A grader that is capable of pre-shaping, aerating, spreading and final shaping of the reclaimed material. The grader shall have an automated cross slope indicator and a grade reference system for longitudinal control. The grader blade shall not use scarifying teeth.

4. **Rollers:** The following shall be the minimum requirements for rollers:

    a. A vibratory padfoot roller with a minimum 84 inch wide drum and a 10 ton minimum weight and a blade for back dragging.

    b. A pneumatic tire roller with a water spray system and a 20 ton minimum weight may be used.

    c. A vibratory steel roller, double drum or single drum, with a water spray system and a 10 ton minimum weight.

    If the reclamation depth is 6 inches or less, a padfoot roller is optional if all the compaction requirements in subsections E.4, E.6, F.7 and G can be met. If no padfoot roller is used, then the pneumatic roller shall be increased to a 25 ton weight.

5. **Water Truck.** A water truck for supplying the above equipment and capable of providing a controlled spray of water on the road as required for moisture content before, during and after the asphalt emulsion injection and as required to assist in final compaction of the reclaimed material. The water truck shall be free of excessive leaks that would be detrimental to reclaimed material.

E. Construction Operation.

1. **Roadway Preparation:** Grass and other vegetation shall be removed from the existing roadway and the edge of the roadway to prevent contamination of the asphalt emulsion full depth reclamation. Any widening areas need to be excavated prior to the pre-pulverization of the existing roadway. This widen is not limited to that called for in the plan but shall include any additional width needed to complete the recycling process.

2. **Moisture Content:** Moisture content before adding the asphalt emulsion shall be within 1.5 percent ± of the optimum water content for mixing as stated in the mix design. If moisture content is in excess of the target value the material shall be aerated and dried to the target value, should the moisture content be less than the target value water shall be added to achieve the target value. The amount of asphalt emulsion to be used shall be as recommended in the mix design for this project. Prior to the injection of the asphalt emulsion the reclaimed material shall have a gradation meeting the requirements of Table 2.

3. **Number of Reclaimer/Pulverizer Passes:** The existing pavement section shall be pre-pulverized to the depth shown in the plans. During this first pass any additional aggregate required shall be added ahead of the reclaimer. If needed water will be added at this time. The pulverized material spread and the cross slope set with a motor grader to the dimensions shown in the plans.

The Contractor shall ensure that there is no gap of un-reclaimed material created between successive cuts (along the same longitudinal cut line), nor wedges or un-reclaimed material created by the entry of the reclaimer drum into the existing material. Longitudinal joints between successive cuts shall overlap a minimum of 6 inches and transverse joints shall overlap 2 feet. The pre-pulverized material shall have the asphalt emulsion inject process completed within 4 calendar days of pulverization. It shall be the responsibility of the contractor to be aware of forecasted weather conditions and limit the exposure of the pre-pulverized material to excessive moisture.

The second pass with the reclaimer shall be for the injection of the asphalt emulsion as outlined in the mix design. Shaping and compaction shall be as directed in sections E.4 through E.6.

4. **Compaction:** Compaction of the asphalt emulsion full depth reclamation shall be completed using rollers meeting the requirements of subsection D.3. Rolling patterns shall be established to achieve the required density in subsection F.7. The breakdown roller (padfoot or pneumatic) shall not be behind the reclaimer by more than 500 feet. The padfoot roller, applying high amplitude and low frequency, or the pneumatic roller shall perform initial compaction at enough passes until it walks out of the material. Walking out for the padfoot is defined as light being clearly evident between all of the pads at the material-padfoot drum interface and being no more than 3/16 inch deep. Walking out for the pneumatic roller is defined as no significant wheel impressions being left on the surface.

5. **Shaping:** After the completion of the padfoot rolling, any remaining marks shall be removed and the material spread using a motor grader to cut deeper than the depth of the padfoot marks. Desired cross slope and shape shall be achieved.

6. **Final Compaction:** The vibratory steel roller and pneumatic roller shall compact the bladed material. The best combination of number of passes and order of rollers shall be used to the compaction requirements. Finish rolling to eliminate pneumatic tire marks and to achieve density, shall be done by the steel roller(s), operating in static mode. A light spray of water may aid in final compaction density and appearance. The selected rolling pattern shall be followed unless changes in material or placement conditions occur, then a new rolling pattern shall be established at that time. Rolling patterns shall change when major displacement and/or cracking of the surface occurs.

7. **Surface Course:** Before placing the surface course, the asphalt emulsion full depth reclamation shall be allowed to cure until its moisture is reduce to 50 percent or less of the optimum moisture content (OMC), per the mix design, or, until the moisture content is reduced to a value of 2.5 percent or less. If these requirements can not be achieved in the field the Contractor shall consult with

the designer of the mix design to find an appropriate and acceptable plan to facilitate the placement of the surface course.

F. Quality Control

The Contractor shall be responsible for all aspects of the quality control for this project. The Contractor shall submit a Quality Control Plan at the time of the Preconstruction meeting or at a minimum of 10 days prior to the beginning of any work related to the recycling operation. This plan shall be reviewed by the agency or agency representative and be approved in writing prior to proceeding with any work related to the recycling. This plan shall include but be limited to the entity performing the QC testing, the personnel that will be performing required testing, listing of similar projects experience and a listing of available field and laboratory equipment. The agency shall have unrestricted access to the laboratory, sampling, testing sites and all information resulting from the quality assurance activities. All QC testing results will be provided to the agency within 24 hours of sampling. All testing required for quality control is listed in Appendix 1.

All work related to providing Quality Assurance for this project shall be paid for at the unit price bid for Quality Control – Lump Sum.

1. **Additional Aggregate:** The spread rate of additional aggregate shall be checked and conform to the quantity required by the mix design. The type of additional aggregate shall conform to the type used in the mix design and subsection B.3. Rates shall be checked a minimum of once every ¼ mile per pass or as directed by the Engineer.

2. **Crushed Material:** Samples of the crushed material shall be obtained before the addition of the asphalt emulsion and sieved to determine compliance with the following maximum particle size requirements. Sample size shall be a minimum of pounds. Sampling frequency shall be a minimum of 2 times per day of production or at the direction of the Engineer.

Table 2

Crushed Material	
Sieve Size	**Percent Passing by weight**
2.0 in. (50 mm)	100
1.75 in (44 mm)	97 - 100

3. **Asphalt Emulsion:** The asphalt emulsion shall be received on the job site at a temperature no greater than 120˚F. A minimum of one gallon per day shall be taken by the Contractor and given to the Engineer. The asphalt emulsion shall meeting the following requirements:

Table 3

Asphalt Emulsion			
Test	**Specification**	**Minimum**	**Maximum**
Residue from Distillation, percent	AASHTO T59	64	None
Oil distillate by Distillation, percent	AASHTO T59	None	0.5
Sieve Test	AASTHO T59	None	0.1
Penetration @ 25˚C, dmm*	AASTHO T49	75	200

* Modified AASHTO T59 procedure – distillation temperature of 177C with a 20 minute hold

4. **Asphalt Emulsion Content:** The asphalt emulsion content used shall be as recommended in the mix design. Any changes in asphalt emulsion content must be approved by the Engineer. The percentage of asphalt emulsion added shall be checked by determining the amount used by meter readings or truck weight tickets for the quantity of the road reclaimed (depth, width, length). Adjustments in equipment calibration shall be made if necessary. Asphalt emulsion content shall be checked and recorded daily. Asphalt emulsion content changes shall be made based upon the individual mix design for each varying road segment sampled.

5. **Moisture Content:** Prior to adding the asphalt emulsion, moisture content of the crushed material shall be checked. Suitable methods include microwave oven direct heating (hot plate or drying oven) or infrared. Minimum sample size is **500** grams for the microwave procedure. Material for checking moisture content shall be taken from the entire depth of the reclaimed material. Check the moisture content on the same day, and prior to the addition of the asphalt emulsion. If rain has occurred after testing and before the addition of the asphalt emulsion, re-check the moisture content. If the average moisture content is not within 1 percent of the mix design recommendation, then it shall be adjusted by moisture being added (water truck) or by drying by aeration. The sample shall be to the depth of the reclamation by any suitable method; making sure the sides of the sample hole are perpendicular to the road surface**. Keep samples sealed until they are ready for testing**. The moisture content shall be checked on at least each reclaimer pass on the first day of adding the asphalt emulsion. Moisture content shall be checked and recorded for each varying road segment in which the asphalt emulsion percentage is different. Moisture content changes shall be made based on mixture consistency, coating and dispersion of the crushed material. Moisture content sampling frequency shall be at a minimum of 4 times during the day ahead of the injection process.

6. **Reclaimed Depth:** The reclaiming depth during the operation shall be monitored regularly to determine compliance with the plans. The depth shall be determined on each side of the reclaimer pass and shall be adjusted immediately as necessary.

7. **Compaction:** It is recommended that moisture and emulsion contents be checked and established before determination of reference density.

8. **Modified Proctor Density:** Refer to ASTM D 1557, Method C or equivalent; the 6 inch mold is required. Only the nuclear gauge (ASTM D 2950, direct transmission) shall be used for acceptance testing and it shall be measured at the same location as the Modified Proctor. Samples shall be obtained from the full depth reclamation before rolling and stored in sealed container for no longer than one hour before Proctor compaction. Material shall be compacted to a minimum of 95 percent of the Modified Proctor average reference density (dry). Moisture content on the material shall be obtained in accordance with subsection F.5 for reference. The mold shall be placed on a firm surface during compaction. If accurate dry (nuclear) density results cannot be obtained, then wet density shall be the reference.

G. Weather Restrictions

Asphalt emulsion full depth reclamation operations shall not proceed in the rain or at temperatures below 50°F. The weather forecast shall not call for freezing temperatures for seven days. The historical weather database shall not call for freezing temperatures within seven days from the end of reclaiming; this shall be based on 50 percent reliability. Any deviation from these requirements requires the Engineer's approval in writing.

H. Surface Requirements

Upon completion of placement and compaction of the asphalt emulsion full depth reclamation, the finished surface shall show no variations greater than ½ inch from the edge of a 10 foot straightedge resting on any two points and laid parallel to and/or at right angles to the centerline. All deviations from this tolerance shall be corrected at no additional cost to the Owner.

During the curing period, the surface of the asphalt emulsion full depth reclamation may be sealed, if necessary, to prevent raveling, as determined by the Engineer. A minimum amount of emulsion should be employed since the intent is not to seal the surface such that curing is precluded. Fog sealing shall be accomplished with SS-1h or SS-1 emulsion applied at an approximate rate of 0.05 to 0.10 gallons per square yard of dilute asphalt emulsion (50/50 mix of emulsion and water by volume). The fog sealing will be performed as directed by the Engineer.

The Contractor shall be responsible for maintaining the surface of the asphalt emulsion full depth reclamation in a smooth, compacted condition free of ruts, distortion, potholes, loose aggregate and to the grade and cross-section tolerances previously stated, until the surface is placed. All loose aggregate that develops on

the surface shall be removed by power brooming. The entire surface shall be power broomed prior to the placement of the surface course.

The Contractor shall make any repairs of the previous mentioned deficiencies to the completed asphalt emulsion full depth reclamation as directed by the Engineer and shall be performed at no additional cost to the Owner.

I. Measurement and Payment

The completed work as measured will be paid for at the contract unit price for the following contract items (pay items):

Contract Items (Pay Items)	**Pay Unit**
Asphalt Emulsion Full Depth Reclamation …….	Square Yard
Engineered Recycling Asphalt Emulsion ……..	Gallons
Fog Sealing …….	Gallons
Quality Control …….	Lump Sum

Asphalt Emulsion Full Depth Reclamation work as described for this item will be measured by the square yard of completed sections for the depth specified in the plans. It shall include pre-pulverizing, injection of asphalt emulsion, grading, shaping and compaction. It shall also include furnishing, preparing, hauling and placing any other materials, including but not limited to, water and aggregate. This item shall also include all work necessary to finish the reclaimed surface to the plan grades and cross slopes, all excess material shall be removed and deposed of in accordance with the corresponding section(s) of the governing Construction and Material Specifications. All of the above described work shall include all labor, tools, equipment and incidental necessary to complete the described work and quality control.

Appendix 1

Mix Design Procedures

1.1 Sampling and Processing

Based on data from auger borings (ASTM D 1452), cores, and/or other determinations (i.e. pavement records, FWD deflection data, etc.), determine if more than one design shall be performed. In addition, projects with more than a 2 inch difference in HMA surface between sections shall have separate designs performed. A minimum sample size of 350 pounds is required for each mix design.

Crush material to the gradation below before blending with aggregate. If HMA materials consist of chip seal only, then the only requirement is that it is crushed to 100 percent passing the 1 inch sieve.

Washed gradation shall be performed in accordance with AASHTO T11 and T27 on the composite base material. This material will include any or all existing base, and/or rap or virgin aggregates. The materials will be blended in the proportions that are representative of the project depth and cross section. Determine of the material to be reclaimed meets the following gradation:

Sieve Size	Percent Passing by Weight
2.0 in	100
1.75 in	97 to 100
No. 200	0 to 20

The base road shall have a sand equivalent performed and reported in accordance with AASHTO T176. RAP shall have a sand equivalent performed. Report the washed gradation and sand equivalent on the blend.

If needed, virgin aggregate shall be blended with the FDR material to meet the required gradation above. If reclaimed material does not have a sand equivalency greater than 30 and/or washed gradation of less than 20 percent passing the No. 200 sieve, then virgin aggregate or RAP may be added so that those conditions are met.

1.2 Selection of Water Content for Design

A modified Proctor compaction shall be conducted in accordance with AASHTO T180 to determine the optimum moisture content at peak density. Material containing 20 percent or more passing No. 200 shall be mixed with target moisture, sealed, and set aside a minimum of 12 hours. All other material shall be set aside a minimum of 3 hours. If a material contains a significant amount of RAP or coarse material and does not produce a well-defined moisture-density curve, then the moisture content shall be fixed at 4 percent.

Select the water content of specimens, not including water in the emulsion, based on:

- 60 to 75 percent of OMC if SE $\leq$ 30
- 45 to 65 percent of OMC if SE > 30

Sand equivalent value (SE) is from the combined materials.

If a material contains less than 4 percent passing No. 200 or if no peak develops with the OMC curve, then fix the moisture content between 2 and 3 percent.

1.3 Preparation of Test Specimens

Sufficient samples shall be taken before addition of water and emulsion to produce at least 95 $\pm$ 5 mm height and 150 mm diameter compacted specimens.

Specimens shall be mixed with the required amount of water for 60 seconds before addition of asphalt emulsion.

Three or four emulsion contents shall be selected.

Note: Four emulsion contents of 2%, 3%, 4%, 5% and 6% by weight of total mix are typically used but other ranges or narrower bands (0.5%) can be selected.

The following number of specimens shall be produced for each test method in the laboratory at each emulsion content.

Test	No. of Specimens/ Emulsion Content
Maximum Specific Gravity*	2
Short Term Strength (STS)	2
Indirect Tensile Strength (ITS) Dry	2
ITS Conditioned	2

*Uncompacted

Aggregate material and emulsion shall be mixed in a mechanical mixer at a temperature of 20˚C to 26˚C for 60 seconds. Specimens after mixing shall be cured individually at 40˚C for 27 to 33 minutes.

If other materials are added, such as lime or cement, then they shall be introduced in a similar manner as they will be on the project. For example, if lime is incorporated a day or more before emulsion addition, then it shall be added to the wet aggregate a day or more before mixing with emulsion. If lime is incorporated as slurry, then it shall be incorporated as slurry in the laboratory.

Note: Usually addition of 1% lime or cement is sufficient.

1.4 Compaction

Specimens shall be compacted in a gyratory compactor at a vertical pressure of 600 kPa at an angle of 1.25˚ and a mold of 150 mm for 30 gyrations at a temperature of 20˚C to 26˚C. After the last gyration, 600kPa pressure shall be applied for 10 seconds. The mold shall not be heated.

Specimens, except for short term strength testing, shall be cured in forced draft oven for 48 hours at 60˚C to a constant weight. After curing, the specimens shall be cooled at room temperature for 24 hours.

For initial gyratory compacted stability, after compaction, samples shall be cured at room temperature (25˚C) for a minimum of 24 hours.

Specimens for maximum specific gravity shall be in loose form and cured at the same conditions as the compacted specimens, except they can be tested after cooling a maximum of 24 hours.

1.5 Volumetric Measurements

Determine and average the Maximum Specific Gravities of two samples at each emulsion content using AASHTO T209 using the supplemental dry-back procedure

Prior to testing for ITS, determine and average the Bulk Specific Gravities of all compacted specimens at each emulsion content using AASHTO T166.

1.6 Short Term Strength (STS)

The short term strength test is used as an indicator of mixture stability under partial cure. A modified Hveem cohesiometer apparatus shall be used to test early strength (1 hour). This apparatus and procedure generally conforms to ASTM D 1560, Section 13 with the following exceptions:

- It shall have the capability of testing 6 in. (150 mm) diameter specimens.
- It shall have a shot flow rate of 5.95 ± 0.11 lb/min (2700 ± 50 g/min).
- Specimens shall be cured before compaction according to Section 5, and cure each specimen at each emulsified asphalt content for 60 ± 5 min at 77 °F (25 °C) and 10 to 70 percent humidity after compaction and before testing.

The following calibrations shall be made.

- The counter balance should be positioned exactly so that the hinged plate just barely remains horizontal when the top brackets and empty bucket are in place. This ensures that there is no force on the sample until shot begins to flow into the bucket.
- The gap between the bars of the switch that turns off the flow of shot should have a gap of 0.75 in. (18 mm) when there is 3000 g of shot in the bucket. During this adjustment the locking bolt that prevents the plate from moving is in place.

STS shall be tested as follows.

1. Tare the balance with the empty bucket weight.
2. Center the specimen on the unit.
3. Place plates on top of sample and press down while adjusting the outer lower nuts up until they just contact the bottom of the plate.
4. Use a torque wrench or torque-meter to tighten the nuts on the specimen to a maximum of 1.6 foot pound 2.6 (N m).
5. Gently support the bar so the unit does not move when the pin is pulled releasing the hinged plate.
6. Pull pin and push open valve to start the flow of shot.
7. After the unit shuts off the flow of shot, immediately put the locking pin in place and then record the weight of shot.
8. Loosen top nuts to remove plates and rotate specimen 90°.
9. Repeat procedure on the other axis of the specimen.

10. Calculate short-term strength as follows:

$STS = SW / 15(0.031 * h + 0.0027 h^{2)}$

Where: *SW = Shot Weight in grams*

h = height in cm

11. A total of two results will be obtained for each specimen at each emulsified as

1.7 Indirect Tensile Strength (ITS)

Prepare four specimens at each emulsion content. These specimens shall be prepared according to Section 1.3. Test specimens according to AASHTO T283, excluding section 10.3.7 (in ASSTHO T283-07) – do not perform freeze/thaw test on the specimen. Specimens shall be conditioned at 77 °F (25 °C) for two hours before testing. Vacuum saturate half the specimens at each emulsified asphalt content to a minimum 55 percent of the voids filled with water. Soak for 24 hours at 77 °F (25 °C) before testing.

1.8 Selection of Emulsion Content

The design emulsion content shall be selected to produce a FDR mixture that meets all of the design criteria.

For 152mm diameter specimens using Gyratory Compactor	
Properties	**Criteria**
SGC, 1.25˚ angle, 600 kPa	30 Gyrations
Short Term Strength (STS) ASTM 1350, Part 13 175g/25 mm of width	175 min
ITS of Control Samples, AASHTO T283, psi	40 min
ITS of conditioned samples, AASHTO T283, psi	25 min

1.9 Report

The report for the JMF shall be as follows:

- Physical address of the road and project information
- Penetration of the emulsion residue used in the mix design
- Average thickness of the hot mix asphalt
- Thickness to be reclaimed
- Density and optimum moisture content from Proctor compaction
- Moisture content used in mix design
- Short Term Strength
- Indirect tensile strength
- Conditioned indirect tensile strength
  - Design emulsion content as a percent, in gallons per square yard

Appendix 2

Example QC Data Sheet (Use one or more sheets per day)

INFORMATION

Date:	Project / Location
QC Personnel:	Phone:
Temperature at Start of day:	Temperature at End of day:
Climate Conditions:	
Other Notes:	

RESULTS OF MIX DESIGN

Optimum Moisture Content (OMC) from Modified Proctor
Density at OMC
Recommended Field Moisture Range
Recommended Emulsion Content

ADD ROCK

Station /Location						
Type and Source						
Length, ft.						
Width, ft.						
Weight, lbs.						
Rate, lbs / sq.yds						

TEST STRIP FOR NUCLEAR DENSITY

Location	Station	Wet Density, pcf	Moisture %	Dry Density pcf	Notes
Average (Reference Density)					
Operator	Gauge Model	Gauge Serial #			
Final Roller Pattern					

MATERIALS TEST

Station / Location				
Max. Size – 2”				
Size – 1.75”				
Moisture Content, %				
Emulsion Content, %				
Wet Density, pcf				
Dry Density, pcf				
Proctor dry density, pcf				
Percent of Reference Density				

Station / Location				
Max. Size – 2”				
Size – 1.75”				
Moisture Content, %				
Emulsion Content, %				
Wet Density, pcf				
Dry Density, pcf				
Proctor dry density, pcf				
Percent of Reference Density				

Reported By: _____ **Date:**_____