

**Office of the Executive Officer**  
**Digha Sankarpur Development Authority**  
**Digha :: Purba Medinipur**

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**E.O.I. NOTICE -004/DSDA/2021-2022(2nd Call)**

ONLINE E.O.I. INVITED FOR PREPARATION OF DETAILED PROJECT REPORT(DPR) FOR  
DRAINAGE OF SURFACE WATER RUNOFF AT DIGHA- SANKARPUR AND ADJOINING AREAS  
UNDER DSDA

**Office of issue** : Executive Officer, Digha Sankarpur Dev. Authority  
**EOI No.** : 004/DSDA/2021-2022(2<sup>nd</sup> Call)  
**EOI Document** : Details are given below

The Executive Officer, DSDA is to hereby invite the "Expression of Interest cum Request for Proposal" from renowned Consultancy Firms only having sufficient experience as stated at sl. no. 5.

**Name of the Work**

Preparation of Detailed Project Report (DPR) under DSDA for

- I. Drainage of storm water runoff at Digha- Sankarpur and adjoining areas.

I. Intending bidders may download the bid documents from the website <http://wbtenders.gov.in>

2. Selection Procedure - Selection will be made through Combined Quality Cum Cost Based System (CQCCBS) in accordance with FD Memorandum no. 8385-F(Y) dt the 22nd November, 2013. The minimum technical qualification marks is 70. The technical proposal will be given 70% weight age while the financial proposal will be allotted weight age of 30%. The bidder (H-1) who will obtain the highest total combined score after technical (quality ) and financial (cost) evaluations will be selected.

Detailed Bid Evaluation Criteria is given in the table at sl. no. 15.

**3. Submission of Proposals:-**

Proposals are to be submitted in two folds, viz.,

- A. Technical Bid
- B. Financial Bid.

#### 4. Time Schedule

Date of uploading of Bid documents	07.01.2022
Publishing date and time (online)	07.01.2022 at 6:00 p.m.
Documents download start date and time (online)	07.01.2022 from 6:00 P.m.
Date & time of Pre-Bid Meeting with the intending bidders in the Office of the EO/DSDA OR <b>intending bidders may participate virtually on google meet to join the meeting on meet, click this link: <a href="https://meet.google.com/yvj-yntd-nsq">https://meet.google.com/yvj-yntd-nsq</a></b>	18.01.2022 at 3:00 p.m.
EOI submission start date and time (online)	18.01.2022 from 5:00 p.m.
EOI submission closing date and time (online)	29.01.2022 upto 03.00 p.m.
Date and time of opening Technical Proposal(s) (online)	31.01.2022 at 03:00 p.m.
Date of opening of Financial Proposal(s) (online)	To be notified at the time of uploading the technical evaluation sheet
Uploading the list of qualified bidders along with marks (online)	After evaluation by Tender Evaluation Committee

#### **Time will be reckoned as per I.S.T.**

All bids, viz., Technical and Financial will be evaluated by the Tender Evaluation Committee to be formed by the UD & MA Department. The decision of the Tender Evaluation Committee will be **final and absolute in this respect.**

#### **5. Eligibility Criteria for the Bidders: -**

Consultancy firms having experience offering similar consultancy service i.e. preparation of at least one compressive Urban Storm Water Drain Project Report and Master Plan for any city with more than 1,00,000(one Lakhs) population spreading over not less than 200 Sq.km Urban attachment area in the last 5(five) years in survey mapping design, drawing in Urban Storm Drainage Sector . Experience in planning of drainage/sewerage of cities, treatment plants and/ or would be an added qualification. The entity should have sufficient number of in-house/associated technically qualified professionals such as Design Engineers, Environmental Engineers, Civil and Electro-Mechanical Engineers (conversant with **EPANET/Sewergems/StormCAD** etc., Draftsman with knowledge of AutoCAD, Surveyor with knowledge of TS/DGPS etc. and other suitable consultants as may required for successful preparation of DPR and mentioned under Para. 15-(A) at sl. no. 5. It would be desirable for the firm to have an office in West Bengal. The Bidders (other than individuals) should be an Indian entity and should be in existence for at least previous 5 years as on date of bid submission. The entity/lead partner in the consortium must have experience in above nature of project during the last five financial years as follows:

- One completed DPR costing not less than **Rs. 30 crore** and duly approved / accepted by the Client or
  - Two completed DPRs costing not less than **Rs. 20 crore** each and duly approved/ accepted by the Client
- ii) The bidders should have an average Annual Turnover of Rs. 2.00 crore or more during the financial years 2020-21, 2019-20 , 2018-19 & 2017-18

a) Photocopy of PAN card, professional tax certificate, GST registration certificate etc. will have to be submitted.

b) Other supporting documents to be produced with respect to Eligibility Criteria:

Criteria	Supporting Documents to be Submitted
i) The Bidder should be an Indian Company registered under the Indian Companies Act 1956/2013.	Certificate of Incorporation
ii) The Architect (participating in individual capacity) should be registered with the Council of Architecture.	Certificate of Registration issued by Council of Architecture
iii) For partnership firm	Partnership Deed
iv) For consortium of not more than three entities	Agreement/Deed
v) The Bidder or Lead Partner in a consortium should have executed planning and designing of urban facilities anywhere in India in last five financial years from the date of publication of this EOI as follows : One completed DPR costing not less than Rs. 30 crore and duly approved/accepted by the Client or a) Two completed DPRs costing not less than Rs. 20 crore each and duly approved/accepted by the Client	a) Completion Certificate  b) Completion Certificates
vi) The bidder should have an average Annual Turnover of <b>Rs. 2.00 crore or more</b> during the Financial years 2016-17, 2017-18 & 2018-19.	Copy of audited balance sheet for FYs 2020-21, 2019-20 & 2018-19 duly certified by a Chartered Accountant
vii) The bidder should have adequate technical professionals having experience in similar nature of works.	Form 2 {CV format}

#### 6. Declaration on Notary:-

Photo Copy of one affidavit before Notary will have to be submitted mentioning the correctness of the documents and a declaration regarding blacklisting and/or penalty debarment etc. faced by him/her under any Govt ./ Semi-Govt./ Autonomous body/ Institution.

7. **Mobilisation Advance:** No Mobilisation Advance, escalation and Secured Advance will be allowed.

8. **Bid Validity:** Bid shall remain valid for a period of 365 (Three hundred sixty five) days. If the bidder withdraws the bid during the period of bid validity, the earnest money deposited will be forfeited without assigning any reason thereof.

9. **Arbitration:** There will be no provision of arbitration.

10. **Bid documents: -**

A. **Technical cover**

- a) The following documents shall have to be submitted by each bidder:
- i. Audited Balance Sheet for Financial Years mentioned at Sc(vii) before
  - ii. PAN Card
  - iii. Professional Tax Certificate (challan for current year to be submitted in case of non-availability of certificate)
  - iv. GST Registration Certificate
  - v. Technical Credential in form of Completion Certificate(s) only as mentioned at Sc(vi) before
  - vi. Certificate of Incorporation
  - vii. Form 2 (CV format for technical professionals)
  - viii. EOI and corrigenda & addenda, if any, uploaded by the TIA
  - ix. Notary Affidavit as mentioned under Para . 6 above
  - x. Forms 1 & 3 duly filled up.
  - xi. Receipt of EMD/relevant document in case of exemption of EMD.
- b) Additional list of documents shall have to be submitted by a Proprietorship/Partnership Firm/Consortium:
- i. The power of Attorney for the firm for signing the tender
  - ii. Partnership Deed/Agreement as mentioned at Sec. (iv) & (v).

B. **Financial cover**

The rate should be quoted on BOQ.

**Note-**

1. Content showing the requisite documents uploaded by a bidder should be annexed in the beginning.
2. The Bid Documents cited under para. 10 shall be part and parcel of the Tender and shall have to be uploaded by a bidder with digital signature.

11. **Survey, Concept Plan, Design, Approach, Methodology and Work Plan:** This is the most important part of the bidding process. Care should be taken to accommodate all the provisions of Terms of Reference (TOR). Addition and/or alteration, if any, towards betterment of the project will be appreciated keeping the basic requirements as mentioned under TOR. The CTEC also reserves the right to cancel a particular bid or all of them if the documents submitted by the bidders are not satisfactory without assigning any reason.

12. **Language of Bid documents: -**

The bid documents shall be submitted in the prescribed form in English language. All literatures and correspondences in connection with the Tender shall be in English language. If any document is not in English language, it should be translated in English language and will have to be authenticated by the bidder.

**Special Terms and conditions:-**

- a) Notwithstanding anything contained in this bid document, the Authority reserves the right to accept or reject any Proposal and to annul the Selection Process and reject all Proposals at any time without any liability or any obligation for such acceptance, rejection or

annulment and without assigning any reason thereof.

b) **Pre-Bid Meeting.** Pre-bid meeting will preferably be held at the Office Chamber of the EO/DSDA, at the scheduled date and time mentioned in the time schedule at 4(d). All intending bidders are requested to go through the bid documents visit the site and submit the queries, if any, addressed to the EO/DSDA through e-mail: [eodsda@gmail.com](mailto:eodsda@gmail.com) prior to the bid submission start date.

### 13. Amendment of Bid Document

i. At any time, prior to the start date of submission of Bids, the Authority may, for any reason whether at its own initiative or in response to clarifications requested by a prospective Bidder during the Pre -bid meeting or via mail, modify bid documents by corrigenda and/or addenda.

ii. The corrigendum details will be published only on the website <https://wbtenders.gov.in> and these amendments shall be binding on all bidders.

### 14. HOW TO APPLY

i. Applicants willing to take part in the process of e-Tendering will have to be enrolled & registered with the Government e-Procurement system through logging on to <https://wbtenders.gov.in> using the option - Click here to Enrol. Possession of a Valid Class II Digital Signature Certificate (DSC) in the form of smart card/ e-token in the name of the Firm is a prerequisite for registration and participating in the Tender submission activities through this website. Digital Signature Certificates can be obtained from the authorized certifying agencies, details of which are available in the website <https://wbtenders.gov.in>.

ii. Intending bidders can search and download NIT and other Tender documents electronically by logging on to the website <https://wbtenders.gov.in> using Digital Signature Certificate (DSC). This is the mode of collection of Tender documents electronically.

iii. Submission of Earnest Money (EMD) & refund of the same under the e-procurement system will be dealt with as per G.O. no 3975 - F(Y) dated 28th July, 2016.

iv. An initial EMD amounting to **Rs. 2,00,000/- (Rupees two lakh)** towards earnest money deposit along with the tender documents in favour of the **Executive Officer, DSDA**, in any form as mentioned under Note. Exact amount of EMD to the tune of 2% of quoted value should be submitted online before making formal agreement, if selected.

**Note:** - The Earnest Money, as specified in this e-NIT shall be paid by online internet bank transfer or NEFT/RTGS (as per GO No. 3975-F(Y) dt. 28.07.2016 of Finance Department, Govt. of West Bengal). Every such Transfer shall be done on or after the date of publish of e- NIT. Any Bid without EMD (except exemption as per G.O.) shall be treated as informal and shall be automatically cancelled. The bidder should attach the relevant documents for exemption of EMD, if applicable; otherwise the bid would be treated as cancelled. As per Govt Order: 4245 F (Y) Dated: 28.05.2013 that exemption from payment of earnest money and security deposit given to SSI (Small Scale Industrial) is applicable to supply contracts only not to works contract.

v. Intending bidders will not have to pay the cost of Tender documents for the purpose of participating in thee-NIT, but the successful bidder will have to pay the cost of the same for 3 (three) sets during execution of Agreement as per PWD (Accounts Branch) Notification No. **452-A/PW/O/ 1 OC-35/10** dated 26/07/2011.

vi. A prospective bidder shall be allowed to participate in the tender either in capacity of individual or as a partner of a firm / authorised person for Ltd. Co.

vii. Applicants should note clearly that date and time of submission of applications. Applicants are reminded that no supplementary documents will be entertained by the Authority and the evaluation will be carried out only on the basis of the documents received at the time of closing for receiving Request for Proposal documents.

**Notes for Financial Bid:**

The price quoted in financial bid will be inclusive of all taxes including GST and other charges as applicable. No additional payment will be made above the quoted price. All payments shall be made in INR.

**15. OPENING AND EVALUATION OF EOI: -**

The technical bid will be opened by the TIA on the pre-scheduled date and time (as per time schedule vide Para 4. All bidders will appear for Power Point Presentation of their design proposals with all requirements. However, only those bidders fulfilling the primary criteria cited under Para . 5 before will be considered for technical scoring. Technical evaluation will be made by the Consultancy Tender Evaluation Committee (CTEC). Financial bid will be opened on recommendation of the CTEC. The decision of the CTEC will be final and absolute in this respect.

**iii. Points for Technical Qualification:**

Technical scoring for those bidders fulfilling the primary criteria {as per Para. 5(a)} will be made by the CTEC on the basis of the following components

**Minimum qualification marks 70**

Component	Maximum Marks
<b>Experience in planning and designing urban facilities in India</b>	40
i) Completed one similar nature of DPR of Project Value not less than Rs. 30.00 crore and duly approved/accepted by the Client <b>or</b> ii) Completed two similar nature of DPRs of Project Value not less than Rs. 20.00 crore each and duly approved/accepted by the Client	15  10
Description of Approach /Methodology for the work	
Experience in designing of Sewerage and/or Drainage of cities	10

The entity has an office in West Bengal	5
<b>Financial Capacity of the Firm</b>	10
Average Annual Turn Over of the entity amounting to Rs. 3 crore for the last three financial years 2020-21, 2019-20 & 2018-19	4
1 mark per additional Rs. 1 crore over and above Rs. 3 crore subject to maximum 6 marks	6
<b>Qualification and Experience of the Key Professionals</b>	50

Team Leader (Post Graduate in Public Health Engineering or equivalent with minimum 10 years experience in similar field. Preference will be given to a person with specific experience in the field.	15
Design Engineer (Post Graduate in Civil Engineering(preferably experienced in Sewerage/Drainage and STP with minimum 7 years experience)	10
Environmental Specialist (Specialisation in Environmental Engineering with at least 5 years experience)	5
Structural Engineer (Specialization in Structural Engineering with at least 5 years experience)	4
Geo-Technical Engineer (Specialization in Soil Mechanics & Foundation Engineering with at least 5 years experience)	4
Electrical Engineer (B.E./ B.Tech.in Electrical Engineering with at least 5 years experience)	5
Mechanical Engineer (B.E./ B.Tech. in Mechanical Engineering with at least 5 years experience)	5
Draftsman conversant to AutoCAD (I.T.I. in Draftsmanship with at least 5 years experience)	1
Surveyor conversant to TS/DGPS (ITI in Survey with 5 year experience)	1

Financial Bid of only those bidders who will score 70 or more marks in the Technical Evaluation will be opened by the TIA on the date as per time schedule vide Para 4.

**iv. Points for Financial Qualification:**

The LI bidder will be given a financial score of 100. Financial score of other bidders will be given on percentile basis.

- (i) Financial bids of those bidders, who have secured minimum technical score of 70% or above, will be opened.
- (ii) Bidder quoting lowest price will be awarded Financial Score as 100.
- (iii) Other bidder's financial score would be computed in inverse proportion of their quoted price. For example, if lowest bidder (A) has quoted its price as X, its score would be 100. If bidder B has quoted its price as Y, its score would be  $100 \times X/Y$ .
- (iv) Combined score would be obtained by adding the technical and financial scores.
- (v) Bidder having highest combined score would be recommended for award of the work.
- (vi) In case more than one agency got same highest score, agency with lowest cost would be recommended for award of work.

**v. Combined Marks:**

The technical and financial proposals will be allotted weightage to the tune of 70% and 30% respectively.

The financial bids will also be placed before the CTEC for combined technical and financial evaluation. The bidder who will secure highest point on the basis of combined weighted score will be recommended by the CTEC for selection.

After getting approval from the appropriate authority, the TIA will issue Letter of Acceptance (LOA) to the selected bidder. Then the selected bidder will have to submit exact EMD and

execute formal Agreement with the TIA within the stipulated time frame as directed in the LOA. The successful bidder will be awarded Work Order by the Executive Officer, DSDA after making Agreement.

#### 16. ABOUT THE PROJECT & SCOPE OF WORK:

Digha- Sankarpur is one of the main tourist destination of West Bengal. This also has historic importance. Most importantly, a large part of the local population are dependent on tourist activities . Also a huge surge of floating population comes in holidays and long weekends. But, in recent times, it is facing sudden afflux resulting inundation in several pockets and stagnation causing siltation and chocking of existing drainage system frequently. So, it is felt necessary to make a comprehensive drainage scheme including afflux management in this area all around in order to combat challenges caused by surface run off and coastal flood in monsoon and rainy season in particular. Provision of lifting station, if necessary, and construction of outfall structure and minimum treatment facility of wastewater before discharging to water bodies conforming permissible criteria, as per best practices, is required..

ii. The scope of work is further stated in the Terms of Reference (TO R), which should be followed to prepare the concept plan.

iii.. The intending bidders should visit the site for preparation of realistic bid.

iv. After getting Work Order, the Consultant will conduct a topographical surveyed and finally collect metrological Data for rainfall submit a draft detailed project report as directed by the Engineer-in- Charge (EIC) within eight weeks. The Executive Engineer, , MED will be the EIC and the Superintending Engineer, South Circle, MED will be the overall authority of the project.

v. After approval of the draft DPR from the Superintending Engineer concerned with recommendation(s), if any, the Consultant will prepare and submit at least 4 (four) hard copies of DPR with one soft copy to the EIC within two weeks for necessary approval from the competent authority.

vi. After necessary additions & alterations, if required, as per direction of the authority, the Consultant should submit 8 (eight) hard copies of modified DPR with one soft copy to the EIC within one week for necessary approval from the appropriate authority.

vii. Administrative Approval & Financial Sanction (AA & FS) from the Department of UD &MA would be the final approval for the DPR. The Consultant should comply with the observations of the Department, if any, prior to issuance of AA &FS, within the time as instructed by the EIC.

*Executive Officer*  
*Digha Sankarpur Development Authority*  
*& Spl. Officer, U.D.& M.A. Deptt.*

**Memo No.:** 3150 /DSDA/2021-22

**Dated :** 07.01.2022

*Copy forwarded for kind information to the Senior P.A. to the Principal Secretary, Department of Urban Development and Municipal Affairs, Govt of West Bengal -He is requested to place the matter before the Ld. Principal Secretary.*

*Executive Officer*  
*Digha Sankarpur Development Authority*  
*& Spl. Officer, U.D.& M.A. Deptt.*



Memo No.: 3150 /DSDA/2021-22

Dated : 07.01.2022

Copy forwarded for information to:-

1. The Hon'ble Chairman, DSDA & District Magistrate, Purba Medinipur.
2. The Additional District Magistrate & Additional Executive Officer, Purba Medinipur Zilla Parishad, Tamluk, Purba Medinipur.
3. The Chief Engineer, Municipal Engineering Directorate, Salt Lake, Kolkata
4. The Superintending Engineer, South Circle, M.E.D, Kharagpur
5. The Executive Engineer, Purba Medinipur Division, M.E.D, Tamluk
6. The Sub-Divisional Officer, Contai, Purba Medinipur.
7. The Block Development Officer, Ramnagar-I & II & Executive Officer, Ramnagar - I & II Panchayet Samity.
8. The District Information & Cultural Officer, Purba Medinipur
9. The District Informatics Officer, NIC, Purba Medinipur, Tamluk with a request to publish it in the official website of Purba Medinipur District.
10. Reception / Notice Board.

*Executive Officer*  
*Digha Sankarpur Development Authority*  
*& Spl. Officer, U.D. & M.A. Deptt.*

FORM-I

**PRE-QUALIFICATION APPLICATION**

To  
The Executive Officer,  
Digha Sankarpur Development Authority, Digha :: Purba Medinipur.

Ref: - EOI for \_\_\_\_\_ (Name of work)

EOI No.: \_\_\_\_\_

Sir

Having examined Bid documents, I/we hereby submit all the necessary information and relevant documents for evaluation. The application is made by me/ us on behalf of----- in the capacity of \_\_\_\_\_ duly authorized to submit the proposals. The necessary evidence admissible by law in respect of authority assigned to us on behalf of the firm/individual for application for bidding is attached herewith.

I/We am/are interested in bidding for the said work. I/We understand that:

- (a) Tender Inviting & Accepting Authority can amend the scope & value of the contract bid under this project.
- (b) Tender Inviting & Accepting Authority reserves the right to reject any application without assigning any reason.

Date: -

**Signature of Applicant including title and capacity in which application is made**

**FORM-2**

(CV Format)

**Name of Staff**

Name of Firm/Individual \_\_\_\_\_ Date of Birth \_\_\_\_\_

Nationality \_\_\_\_\_

Education \_\_\_\_\_ Attach qualification certificate(s) \_\_\_\_\_

Countries of Work Experience \_\_\_\_\_

Languages \_\_\_\_\_ Name \_\_\_\_\_ Speak \_\_\_\_\_ Read \_\_\_\_\_ Write \_\_\_\_\_

**Employment Record**

From: \_\_\_\_\_ To: \_\_\_\_\_

Employer: \_\_\_\_\_

Position Held: \_\_\_\_\_

From: \_\_\_\_\_ To: \_\_\_\_\_

Employer: \_\_\_\_\_

Position Held: \_\_\_\_\_

**Detailed Tasks to be Assigned under Team of Experts of Consultant for this work**

**Works undertaken that best illustrates capability to undertake the tasks to be assigned for this work**

Expert's contact information:

**Certification**

I, the undersigned, certify to the best of my knowledge and belief that, this CV correctly describes myself, my qualifications and experience and I am available to undertake the assignment in case of an award. I understand that any misstatement or misrepresentation described herein may lead to my disqualification or dismissal by the Client.

Signature and name of key professional

Signature and name of authorized signatory of the applicant

**FORM-3**  
**(Particulars of the Bidder)**

Particulars	Details
I.  Entity details	Full legal name of bidder
	Country of registration
	Year of incorporation
	Registered office address
	Telephone No.
	e-mail address
	Entity registration No.
	Entity PAN
	GST No.
2. Turnover	Average annual turnover during three financial years, 2019-20, 2020-21 & 2018-19.
3. Contact person details	Name
	Mobile No.
	Designation
	e-mail ID
4. Contact details for Power of attorney signing tender	Name
	Title
	Telephone No.
	Fax No.
	e-mail ID
	Address

## **Terms of Reference (TOR)**

### **1. Background:**

#### **LOCATION**

DSDA is a small tourist precinct covering Digha Sankarpur Tajpur and Mandermoni in the coastal area of Purba Mednipur of District. Its altitude is about 1500 m to 1800 m. above Mean Sea Level. It is surrounded by Bay of Bengal. The precinct has been declared under development authority since 30th March, 2017.

It is located in the Southern coastal part of West Bengal and 181 km. away from Kolkata. The area covered by the development authority is about.....sq km.

#### **AREA & POPULATION**

The approximate area coverage of Digha Sankarpur and adjoining area are 35.42 sq.km. having 42 mouza. The number of households about 6323 (Approx) numbers with a population of 34713 as per census 2011 and 660 (Approx) number of hotels are there.

#### **CLIMATE AND RAINFALL**

The State of West Bengal may be divided mainly various regions due to difference in basic characteristics of climate. The climate of Digha possesses the same character as that of coastal region. The atmosphere is highly humid and frequent rainfall occurs. The average relative humidity is ...%. The average annual rainfall is on an average ... mm which needs further study during estimation of rainfall intensity etc in the DPR. Average maximum temperature remains at ....°C and minimum temperature - .... °C. This precinct experiences flood and damages in cyclonic situation and rainy seasons. Monsoon starts from the 1st week of May and continues up to the end of September and winter normally starts from the end of October and remains up to the end of March.

#### **TOPOGRAPHY AND SOIL**

The area is sandy and frequent sand movement is observed greatly affected by the complexities of seashore movement. The terrain has an inbuilt instability that makes it highly susceptible to damages.

#### **EXISTING LAND USE**

The economy of the town is dependent on the tourism activity. Along the main road and prominent tourist viewpoints, commercial activities are predominant with markets and hotels concentrated in the central core of the area.

#### **INDUSTRY**

Tourism is the most prospective industry for Digha. It is one of the finest tourists' centers with long beach beauty having a large seafront.

#### **HEALTH FACILITY**

The area has one Govt. hospital having ..... beds.

## 2. Objective/ Scope of Work:

The UD&MA Department and DSDA have decided to take up several micro planning in Digha-Shankarpur area to uplift visual and environmental aspect of this tourist spot and integrating measures for prevention of disaster or mitigation of its effect. Implementation of a proper drainage system and discharge of storm and tidal water is an integral part of this holistic approach. Objective The objective is to develop and formalize a comprehensive drainage scheme for the urban and peri-urban precinct of Digha-Shankarpur Development Authority, prone to coastal flooding and Standard Operating Protocol for maintenance of drainage system with a provision of appropriate treatment facility before discharge into the sea, coordinating on-going or approved schemes of other departments in this purpose and retrofitting existing facilities. Municipal Engineering Directorate/ UD&MA Department Scope of Work and Expected Outputs The scope of work and expected outputs/deliverables will be the following:

1. Topographic Survey of the entire area in order to fully understand the entire terrain.
2. Identifications of flood plains, catch basins, demarcation of zones affected by normal and coastal flood
3. Collect, review and analyze all the necessary field level data and documents to prepare a comprehensive drainage project.
4. Collect and analyze the data substantiating past water logging incidents during past years in rainy seasons, especially during high tide, cyclone surge or coastal flood.
5. New proposal should be submitted after considering the existing frame work.
6. Assess existing drainage system capacity for normal storm
7. Collect storm data to generate IDF curve
8. Locate outfalls for normal storm and tidal flood, examining necessity of lifting stations
9. Calculation of run-off, time of concentration, peak flow
10. Engineering Design of drainage network, preferably using **StormCAD/EPANET SWMM/CIVIL3D** Software.
11. Design of open channel section of surface drain for peak flow, interception diversion of existing drains against 100- year return period conforming **CPHEEO Manual - 2019 cl.2.3.1(II)**.
12. Design of outfall structures and treatment facility before discharge
13. Preparation of O&M schedule
14. Estimation of all proposed components, preparation of bid documents.

## 3.Submission of DPR:

A Detailed Project Report will have to be prepared with detailed designs on the basis of soil investigation report(s), drawings, project planning management and estimates following current PWD(WB) SOR with analysis of rates for non-scheduled items of works preceded by detailed surveying for Eco-friendly management of Digha and surrounding area upto about 3 km. distance from sea line with respect to effective use of natural beauty & resources with an objective to keep the entire area free from water stagnation and entrapped wastewater with covered drains and underground if required in some up area, keeping beauty of the tourist spot intact conforming guideline of Water (Prevention and Control of Pollution) Act, 1974 , Environment (Protection) Act, 1986, Environment (Protection) Rules, 1986, Biological Diversity Act, 2002, West Bengal Bio logical Diversity Rules, 2005 and other relevant acts, rules and guidelines.

The Bidders are expected to develop a holistic plan for making the area free of water stagnation and also attractive for the tourists. It may include components such as

installation of Lifting Stations, out falls, treatment and Chlorination units etc. However, the components are only indicative and the firm/individual can come up with their own ideas for serving the main purpose.

The draft Bid documents along with BOQ for implementation of the Project will also be prepared by the Consultant in consultation with the Executing Authority. During execution, supervision of the Consultant should be provided as per requirement.

### **3. Working Drawings and Scope of Modifications:**

Detailed drawings (Hydraulic, Structural, Construction, Electrical, Site Development, Building, Sanitary & Plumbing Works and other specific drawings to meet up the requirement of execution) will have to be provided by the Consultant in five sets (hard copy) along with a soft copy before execution of the project as per direction of the EIC. Modifications should also be made by the Consultant as per site conditions & requirements and as per direction of the EIC during the time of implementation of the project, if required.

#### **Payment Milestone**

- a) After Completion of Survey work-20%
- b) After getting technical approval of DPR- 30%
- c) After AA & FS on DPR - 40%
- d)After satisfactory completion of the work- 10%

#### ***Security Deposit***

Security deposit to be deducted from the bill(s) as per norms. However , the full amount will be released after six months from the satisfactory completion of the work.

## **2. GENERAL PRINCIPLE OF DESIGN:**

### **STEP-1 : Catchment Definition & Discretisation:**

Identify the catchment area boundary (watershed) from topographical survey report. Classify probable future development within the catchment in accordance with its effects on hydrology, hydraulics, stormwater quality & quantity as well as flash water of sea at high tide and with smooth & quick drain off from catchment without water logging should be considered. Off-site areas that drain onto the site, not just the site itself, must be included. Identify location of discharge points (outfalls), along with their capacity and downstream constraints. Identify natural drainage paths through the site.

### **STEP-2: Flow estimation & Check**

Establish a hydrologic model of the catchment, for existing conditions. This requires the use of design rainfall data, and the estimation of hydrologic parameters such as percentage of impervious area or runoff coefficient. Design storm can be estimated from rainfall data records where available as well as the flash water of sea at high tide should be considered on account also.

Up to date IDF(Intensity duration frequency)need to be used to maintain design standard for new system & retrofitting replacement of old urban drainage system.

IDF Curved should be developed.

**STEP-3: Quantity & Quality Control Strategy:**

Please assess the followings if required.

- i) Checking the quality of storm water at the point of outfall.
- ii) Precautionly measured for treatment.( natural /mechanical)
- iii) Operation/ maintenance for the same

**STEP-4:Minor System Initial Assessment**

Design begins with system layout - approximately defining the minor and major flow routes, and broad water quality control strategy. System layout includes the selection of an outfall, defining drainage area boundaries, and identifying the locations of trunk and main drains, and water quality control structures. Initial layouts can usually be done from topographic maps.

Existing drainage alignments should normally be set with the proposed drainage system under gravitational flow primarily. If existing major drainageways are to be blocked by land development, alternative drainage capacity must be provided.

**STEP-5:Major System Check**

After the initial minor system is developed, the next step is to carry out a check of flows in the major design storm to ensure that they are also within acceptable criteria.

**STEP-6: Preliminary Design**

Using the above initial analyses, proceed with preliminary design of the major/minor systems of storm water and flash water from sea at high tide. Consideration should also be given to alternatives, which may result in a more economic design and low maintenance for coastal zone.

**STEP-7: Final designing detailing**

The final design should address all other factors, including structural and geotechnical design, land requirements, approvals, construction documents, co-ordination with other aspects of the project including consideration of minimize the disturbance of the existing properties and traffic.

**STEP-8: Network Reviews:** Network Design for Storm water Quantity should be checked according to provision of code.



*Executive Officer*  
*Digha Sankarpur Development Authority*  
*& Spl. Officer, U.D.& M.A. Deptt.*